# THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—23RD YEAR. SYDNEY, SATURDAY, MARCH 7, 1936. No 10.

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## THE DIAGNOSIS OF TÆNIA SAGINATA INFESTATION.

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IN Victoria at the present time human intestinal tæniasis is infrequent.(1) When it is acquired in Victoria it can be fairly safely assumed that *Tænia saginata* (Figure I) is the causative parasite.

From January, 1933, to July, 1935, we obtained by treatment 186 specimens of *Tænia saginata* from 86 patients. No specimen of *Tænia solium* was found, and only two examples of *Diphyllobothrium latum* were seen. These had been obtained some years previously from two Finns, who were infested before arrival in Australia.

### The Diagnosis of Tænia Saginata Infestation.

*The Discovery of Tapeworm Segments.*

For practical purposes the diagnosis of *Tænia saginata* infestation depends upon the discovery of ripe segments in the stools or on the underclothing of the patient. Almost every patient harbouring one or more mature worms passes ripe segments almost daily at the rate of approximately nine per day for each worm harboured. If the number of segments passed per day be counted over a period of two to three weeks and a daily average estimated, then the number of worms harboured can usually be decided before treatment. Very heavy infestations are exceptions to this rule, as the rate of growth of each worm is apparently greatly retarded. This was specially noticeable in a case in which 31

worms were harboured. After 27 had been expelled the patient complained that he passed more segments than he did before treatment. If alive, the detached segments may assume various shapes, but when dead they are usually similar to those shown at the posterior end of the worm pictured in Figure I. A patient harbouring only one worm may, before presenting himself, have passed, as a result of treatment or spontaneously, a long chain of segments, in which case no segments will be passed until the worm has fully grown again. If the head alone remains in the intestine, it would take something less than one hundred days for the worm to regain its full length. When a chain of segments is passed spontaneously, it rarely consists of more than one hundred, so that in approximately eleven days' time segments would commence to appear regularly. It is comparatively uncommon for a substantial length of worm to be passed spontaneously, so that we have never found it necessary in any of ninety patients to wait longer than two or three days in order to make a diagnosis. After unsuccessful treatment, however, unless another method of diagnosis is resorted to, one may have to wait nearly as long as one hundred days. In addition to segments appearing in the stools or on the underclothing, they may very occasionally be vomited. The duration of freedom from the passage of segments depends upon the time taken for a worm to grow to its full length, that is, for its posterior segments to ripen, after portion of the worm has been discharged. For practical purposes we consider 100 days is the maximum period, so that any person who has not discharged segments for 100 consecutive days is not harbouring *Tænia saginata*. The maximum period (100 days) depends on the rate of growth and the number of segments in a complete worm. This subject is dealt with in another paper.[2]

Figure I.

Complete *Tænia saginata* (slightly less than half natural size). Note (a) the ripe detached segments at the posterior end of the worm, and (b) the narrow anterior portion and the small pigmented head. Specimens vary considerably in macroscopic appearance.

*The Finding of Ova in the Stools.*

Ova (Figures II and III) may be searched for in the stools. If examined for carefully, they will be found to exist in considerable numbers in 100% of cases when the worm is fully grown, that is, when segments are being passed *per rectum*. Ova are not present in the fæces when the worms are immature. They can be present only when segments become detached, because the ova are expelled from the segments through their anterior ends, and not through the genital pore, as might be expected. It is clear, therefore, that searching for *Tænia saginata* ova is not often helpful for diagnostic purposes. We have estimated that the density of *Tænia saginata* ova averages 1·23, and consequently they can be concentrated at the surface from fæces by emulsifying it with saturated brine.

The ova are very similar in appearance to those of *Tænia solium*. *Tænia saginata* ova without their delicate external shells, as they are usually seen in the fæces, are ovoid and measure approximately 37 by 32 by 32 $\mu$. Those of *Tænia solium* are said to be somewhat more spherical and a little smaller.[3] However, as moderate variations in size and shape occur in the case of *Tænia saginata* ova, they cannot on their measurements be differentiated with certainty from those of *Tænia solium*.

*Recovering the Worm or a Portion of It.*

If an immediate diagnosis is essential when segments are not appearing in the stools, the only certain method at present available is to administer an anthelmintic followed by a purgative. In this way part of the worm at least will be expelled, if a reasonable dose of the anthelmintic (liquid extract of male fern)[4] has been given.

*X Ray Examination.*

Tapeworm infestation has been recognized by means of X ray examination following the administration of a barium meal. We have no practical experience of this method and consider that it is

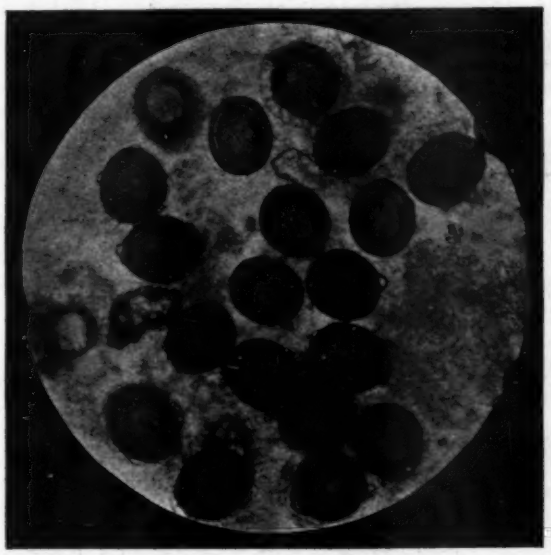

FIGURE II.
Ova of *Tænia saginata*. Most of the ova are devoid of their delicate external shells. This is their usual appearance in the fæces. (× 315.)

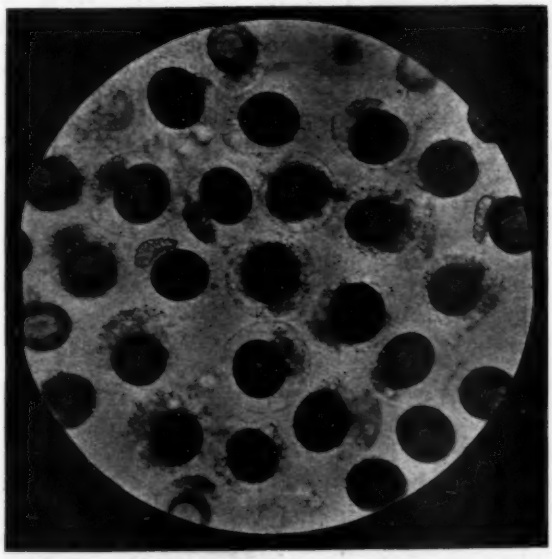

FIGURE III.
*Tænia saginata* ova complete with external shell. (× 240.)

more interesting as a scientific curiosity than valuable as a practical means of diagnosis.

**Suspicion of Tænia Saginata Infestation.**

*Tænia saginata* infestation may be suspected from the following.

*The Meat-Eating Habits of Patients.*

A knowledge of the nationality of the patient is of considerable help in making a quick diagnosis. Syrian-born persons, especially if they have lived in Syria for a period of years, are very likely to be infested because of their habit of eating raw beef, which in their country is so frequently measly. Any person who eats raw or almost raw beef is likely to acquire the infestation, if measly beef is at all prevalent in the locality.

*Serological and Skin Tests.*

Complement fixation and skin tests have been experimented on by research workers.[5] The results so far have been too conflicting to be of any practical diagnostic value. Positive results have been obtained in a fair percentage of cases, but the tests are by no means specific.

*Blood Examination.*

Eosinophilia was present in only two of twenty cases examined. A relative lymphocytosis of 33% to 60% of the white blood cells was present in sixteen of twenty adult patients examined. This still existed when the patients were examined three months after expulsion of the worm.

FIGURE IV.
Ripe segments of *Tænia saginata* (unstained, × 2). The segments have been flattened between two slides and cleared so that the uterus, with its numerous lateral branches, can be easily seen.

**Differential Diagnosis of Tænia Saginata Segments.**

The differential diagnosis of *Tænia saginata* segments from other objects that may appear in the stools may be considered under the two following headings.

*From Other Parasitic Worms.*

*Segments of Tænia Solium (the Pork Tapeworm).*—These are the only objects that need to be closely examined in order to differentiate them from segments of *Tænia saginata*. *Tænia solium* segments are expelled by patients usually at irregular and infrequent intervals. The discharge of *Tænia saginata* segments is more regular. We have never found a case of *Tænia solium* infestation in Victoria. Two readily recognizable points of distinction between *Tænia solium* and *Tænia saginata* are tabulated:

| *Tænia Saginata.* | *Tænia Solium.* |
|---|---|
| *Ripe Segment*: The uterus is said to have fifteen to thirty-five branches on each side of the uterine stem (see Figures IV and V). To see these clearly, an unfixed segment should be flattened between two slides and examined against a good light. We have not examined any segments with fewer than eighteen lateral branches on each side of the uterine stem. | *Ripe Segment*: The uterus usually has 7 to 9 branches on each side of the uterine stem. Five to fifteen is the number given in Osler's "Modern Medicine", 1925. |
| *Head*: The head bears four hemispherical suckers, but no hooklets (see Figures VI and VII). | *Head*: In addition to four suckers on the head, there is on the rostellum a double circular row of hooklets, twenty-two to thirty-two in number. |

*Segments of Diphyllobothrium Latum (the Broad or Fish Tapeworm).*—The ripe segment of *Diphyllobothrium latum* when dead is never as long as that of the dead *Tænia saginata* segment. Ripe *Diphyllobothrium* segments are only slightly longer than broad, whereas the ripe segments of *Tænia saginata* in the relaxed condition are two to five times longer than broad; that is, the former segments are approximately square, and the latter markedly oblong. The uterus is dark brown, rosette-shaped, and situated centrally in the segment. In addition, the head of *Diphyllobothrium latum* possesses only two laterally situated elongated suckers. Many other points of difference exist. We have no evidence to show that this tapeworm has ever been acquired in Victoria. Among the Finnish population of Victoria there is very probably a number of persons harbouring *Diphyllobothrium latum*, as in some districts in Finland 100% of persons are infested.[6] One hundred and twenty-seven Finns

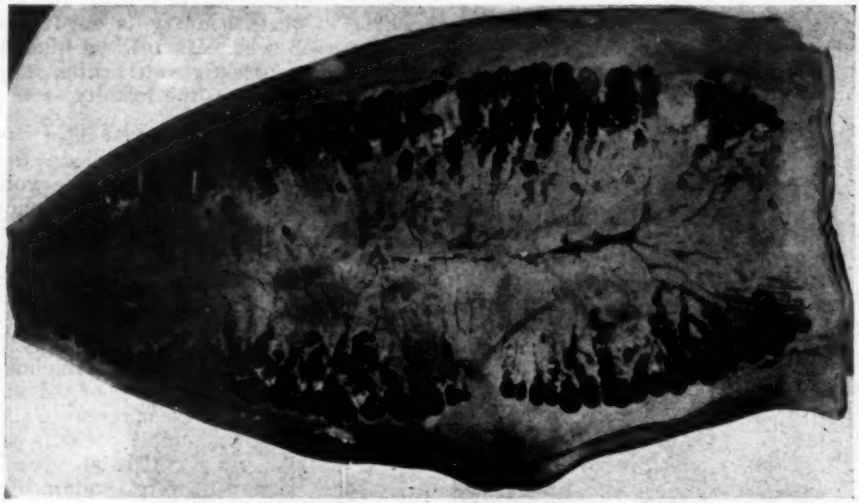

Figure V.
Ripe flattened segment of *Tænia saginata*. Stained with alum cochineal. Note the uterus partially filled with ova, some of which have been liberated through the anterior (narrow) end. (×9.)

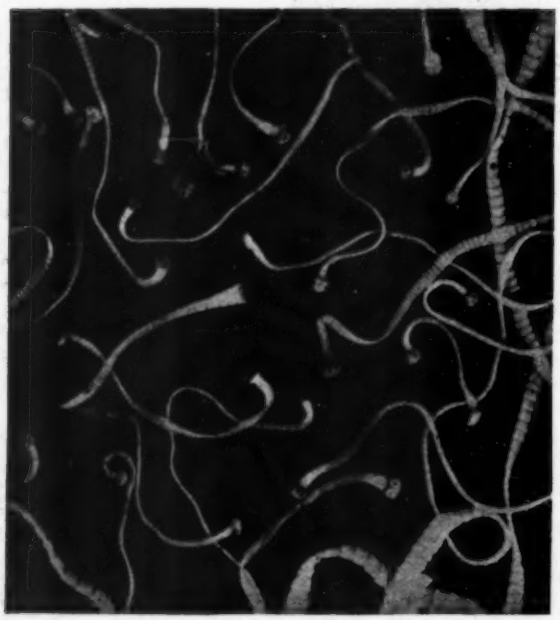

Figure VI.
The heads and anterior portions of twenty-seven *Tæniæ saginatæ* obtained from one patient, twenty-six of them at the first treatment. (×2.)

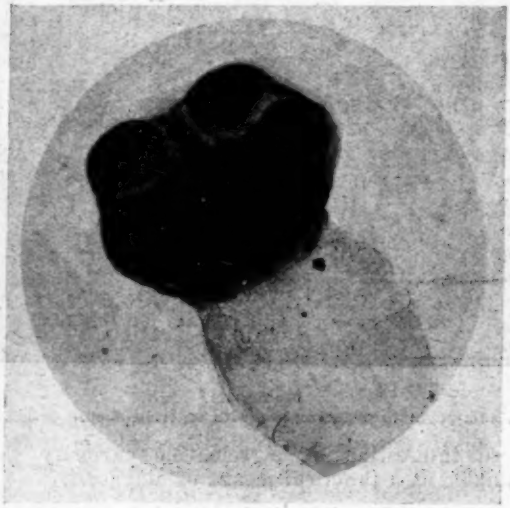

Figure VII.
Head of *Tænia saginata* turned laterally and flattened to show the four suckers but no hooklets. (Unstained, ×30.)

were admitted into Victoria from June, 1927, to June, 1933.

*Other Intestinal Parasites.*—Other intestinal parasites have been mistaken for *Tænia saginata*, but they have no real resemblance to it.

*From Objects Found in Stools, other than Parasitic Worms, which are Sometimes Mistaken for Tænia Saginata Segments.*

1. Undigested and unmasticated portions of fruit, vegetables and meat are not infrequently mistaken for tapeworms. Specimens that we have received include cut-up celery, root vegetables, pieces of orange and other unidentified fibrous material.

2. Mucous casts of the bowel (see Figure VIII). These are commonly mistaken here in Victoria for tapeworms, especially in the absence of any apparent cause for the casts. This mistake would never be made by anyone who had seen a tapeworm, nor probably by anyone who had previously examined a good specimen of a mucous cast. We received specimens from three medical men and nine lay persons who had made this error. The mucous cast is characterized by its unsegmented and almost homogeneous character.

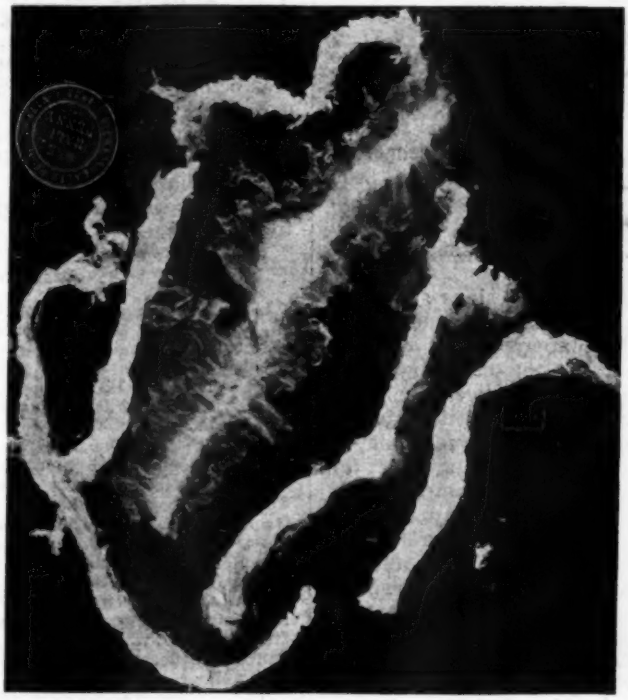

FIGURE VIII.

Mucous casts of the bowel, mistaken for tapeworm, from a case of muco-membranous colitis.

Many uninfested persons insist they have a tapeworm. They may complain of all kinds of symptoms and say that they have had tapeworm for years, but they cannot produce the evidence, even if ample time is allowed. These people are sometimes hard to convince, but no matter how many doctors or chemists have already strengthened the convictions of the patient, a positive diagnosis of *Tænia saginata* infestation cannot be made without the evidence previously described. The evidence for other tapeworm infestation of man consists (in the absence of segments of the worm being discharged) in the discovery of ova in the stools or in the expulsion of portion of the worm by an anthelmintic. The doctor must convince the patient. The patient, without satisfactory evidence, must not be allowed to convince the doctor.

In our own experience three apparently normal persons have described segments in such detail that we considered there was little doubt regarding their infestation, until the supposed segments were examined. The three patients confirmed their assertions when shown a photograph of ripe segments. One of these persons subsequently brought pieces of celery, approximately one inch long, which he said had crawled about. The other two produced specimens of mucous casts. One of these two, who was a raw beef eater, said the pieces escaped from the anus onto the underclothing and she thought they moved. Several other persons, although they did not describe the segments, insisted that they were infested with tapeworm, because of large appetites and anal irritation. The treatment of *Tænia saginata* infestation will be dealt with in a subsequent paper.

Two other persons have come to our notice who had been passing mucus *per rectum* and who had been treated by medical men over a period of years for tapeworm infestation. The importance of seeing the segments before a diagnosis is made cannot be too strongly emphasized.

**Acknowledgements.**

We are indebted to Mr. A. Doutch for the major portion of the photography.

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## REGIONAL ILEITIS, WITH REPORT OF A CASE.

By Keith Ross, M.S.,
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Regional ileitis is not a new disease, but it was not until 1932 that Crohn first described it as a clinical entity. Since Crohn(1) and his associates

published their paper, further descriptions of this disease and reports of more cases have been made by Clute,[2] and Harris, Bell and Brunn,[3] while cases of a similar nature have been described by Erb and Farmer,[4] and Donchess and Warren.[5] These reports have been in American literature, but so far I have seen no mention of this condition in British journals. Thus it may not be out of place, when recording a new case, to give a short *résumé* of the above papers. For this purpose the original one by Crohn will be used most extensively.

### Pathology.

The whole of the pathology is not yet known, so that this account is necessarily incomplete. However, it may be said that the disease occurs as an acute inflammation of the terminal part of the ileum, though Harris describes one case occurring in the jejunum, and several others have been reported in which the caecum and ascending colon have been affected as well as the ileum. Possibly in these latter cases the disease is not identical with that described by Crohn.

It is thought that the primary lesions are small oval mucosal ulcers on the mesenteric border of the ileum and that the inflammatory process spreads thence until the ileum in its last one to two feet are intensely red and swollen and the ileo-colic lymph glands greatly enlarged. The inflammation may be so intense that the lumen of the intestine is almost occluded. There is a distinct tendency for the disease to run a chronic course. Not uncommonly the bowel perforates and abscesses may form or fistulæ open between the ileum and caecum or colon or skin. At other times scarring and contraction may be so severe as to cause intestinal obstruction in one or more places. No specific features have been found in specimens examined microscopically.

The ætiological agent is unknown. Crohn searched for but could find no evidence of tuberculosis, syphilis, actinomycosis, Hodgkin's disease or lymphosarcoma. No one apparently has searched for amœbæ. Erb and Farmer obtained some serological evidence that an organism of the *Bacillus coli* group might be the causative factor, and further evidence of a similar nature was found in the case reported below. This evidence may be interesting, but it is quite inconclusive.

### Clinical Features and Course.

The disease occurs most often in young adults, though Erb's and Farmer's patients were children. The symptoms, of course, vary with the acuteness of the inflammation and the stage of the disease. Crohn describes four main types of case: (i) acute intraabdominal disease with peritoneal irritation, (ii) symptoms of ulcerative colitis, (iii) symptoms of chronic obstruction of the small intestine, and (iv) persistent and intractable fistulæ in the right iliac fossa. The diagnostic methods to be employed to differentiate this from other conditions will vary with the symptoms displayed. Crohn draws attention to the value of radiological examination when chronic obstruction or fistulæ have supervened.

### Treatment.

Treatment will naturally vary with the condition present. As Clute points out, "the number of patients as yet observed with regional ileitis is so small that we must be guided in our treatment by the general surgical principles which we follow in dealing with inflammation and obstruction within the peritoneal cavity". Crohn, whose experience was limited almost entirely to the more chronic stages of the disease, considers that resection of the affected segment of bowel is the ideal procedure. In some cases short-circuiting or side-tracking operations have been successful. In others drainage of an abscess cavity has given relief. In still others, seen or operated on early in the disease, no surgical measures except laparotomy have been undertaken, and in some of these there have as yet been no further symptoms. It will be most interesting to note in what proportion of these early cases treated by conservative methods the disease progresses to its final stages.

### Case Report.

L.M., a male, aged twenty-nine years, was first seen on September 1, 1935, suffering from severe pain in the abdomen and vomiting. These symptoms had commenced twenty-four hours earlier and there had been no abatement. The bowels had opened twice since the onset of pain. The temperature was 37·9° C. (100·2° F.) and the pulse rate was 128. He looked ill and had tenderness and rigidity in the right iliac fossa.

The appendix had been removed eight years earlier, during an attack of acute appendicitis. He had then been well for six years, when he commenced to have rather frequent pain under the operation scar in the right iliac fossa. Soon after this pain commenced, he had had an attack of fairly acute abdominal pain and vomiting, which lasted for four days and for which medical advice was sought. From then on he had suffered almost constantly from nausea and lassitude and, when especially tired, from pains in the abdomen. There had been no disturbance of defæcation. He had remained at work, but never felt well.

The patient was admitted to hospital on the same day as he was seen. An enema was given with a good result.

On the following day there was no improvement in his symptoms or his condition, and it was decided to explore the abdomen.

Laparotomy revealed the terminal forty-five centimetres (eighteen inches) of the ileum to be grossly inflamed, the bowel being red, swollen and œdematous. The ileo-colic lymph glands were also greatly enlarged, and three small lymph glands, up to one centimetre in diameter, were noted on the anterior surface of the caecum. The caecum itself was not inflamed. The last loop of ileum was closely bound to the right wall of the pelvis by firm fibrous adhesions. Apart from these findings nothing else of note was discovered. Two of the lymph glands were excised for examination and the abdomen was closed.

The patient continued to have colicky pain for a week and to run a mild temperature for a fortnight. Otherwise convalescence was normal. Examination on October 12, 1935, after a barium meal revealed no demonstrable abnormality of the intestinal tract. Liberal doses of iron were given for a few weeks, and on November 30, 1935, when the patient was first reexamined after discharge from hospital, he stated that he now, for the first time for many years, felt really well and that he had no abdominal symptoms of any kind.

To try to obtain some light on the ætiology of the disease the following investigations were made. Cultures were made from the cut surfaces of the excised lymph glands, but no growth occurred. Microscopic examination of the

glands revealed no specific changes. The widal test gave no reaction. On the day after operation the fæces were cultured and a coliform bacillus was isolated. This bacillus was non-motile and gave the following cultural reactions: lactose, acid and gas; saccharose, acid and gas; dulcite, –; adonite, acid and gas; inulin, –; inosite, –; indol, ++; milk, acid and clot; gelatine, not liquefied.

The bacillus, in an emulsion of 2,000 million organisms per cubic centimetre, was agglutinated by the patient's own serum to a dilution of 1 in 320. At the same time coliform bacilli isolated from the fæces of four "control" patients were not agglutinated at all by their corresponding sera; these "control" sera did not agglutinate at all the bacillus isolated from the patient, nor did the patient's serum agglutinate the "control" bacilli. Three weeks later the patient's own serum gave no agglutination against his original bacillary emulsion. At this time fresh cultures were made from the fæces and a coliform bacillus was isolated which was motile and gave the following cultural reactions: lactose, acid and gas; saccharose, acid and gas; dulcate, acid and gas; adonite, –; inulin, –; inosite, –; indol, ++; milk, acid and clot; gelatine, not liquefied. The patient's serum caused no agglutination of this organism.

**Acknowledgement.**

I wish to express my indebtedness to Miss M. Sharwood for the bacteriological and serological work reported above.

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## CONTRIBUTIONS OF PSYCHOANALYSIS TO GENERAL MEDICINE.[1]

By R. COUPLAND WINN, M.C., M.B., Ch.M.,
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THE time is ripe to consider what contributions psychiatry is making, and is likely to make in the future, to the totality of knowledge available to general medicine through adoption of that form of psychotherapeutic technique known as psychoanalysis. In this review that part of psychoanalytical discipline already generally known to psychiatrists will be omitted, and consideration will be given to its newer applications only.

Discussion of this subject has been mainly stimulated by the pioneer work of Dr. Alexander, Professor of Psychoanalysis in the University of Chicago. At the Institute for Psycho-Analysis of that city, he and his colleagues have been for several years conducting research analyses on cases of dyspepsia, duodenal ulcer, colitis, chronic constipation, asthma, dysmenorrhœa, *petit mal*, hypertension and endocrine disorder; and, in addition, they intend to study a series of dermatological cases in the near future.[1]

[1] Read at a meeting of the Section of Neurology and Psychiatry of the New South Wales Branch of the British Medical Association on November 14, 1935.

The number of patients undergoing treatment at one time is necessarily so small that no valid statistical results can be expected until the research has been continued for many years, or unless others emulate their example; but eventually the total figures will be sufficient to allow general deductions to be made.

Despite the present impossibility of adequate statistical results, the fact remains that the research is already proving of some value, because it is so intensive. Besides the fact that the long duration of psychoanalytical treatment allows extended observation of individual cases, full advantage is taken of all the available material because physical methods of examination are adopted as a control. Estimations of blood pressure, basal metabolism, and vital capacity are made; but, in addition, the Institute has recently employed the electrophysiological technique for recording human emotional responses originally introduced by Berger for use in animal experiments, though modified to allow of external application of electrodes instead of insertion through apertures trephined in the skull.[2]

Though the results of the Chicago research cannot be regarded as conclusive, it will be recognized that the attempt to control them renders the observations worthy of greater consideration than uncontrolled clinical studies. It should be remembered, also, that despite its liability to fallacy, the therapeutic test alone has always been recognized as providing valuable evidence.

### Alimentary Disorders.

At the Chicago Institute patients suffering from alimentary disturbances are classified into three groups, namely the gastric type, the colitis type, and the constipated type.

#### *The Gastric Type.*

The object of this section of the research being investigation into the possibility of a psychological causation for dyspepsia, whether accompanied by peptic ulceration or not, the work of other clinicians was carefully reviewed as a preliminary.

In the *Psycho-Analytic Quarterly*, Volume III, 1934, pages 501 to 588, Alexander quotes Alvarez[3] as stating that the "go-getter" business man is particularly disposed to recurrent peptic ulcers. He quotes Hartman[4] as making the same assertion and, on the other hand, drawing attention to the absence of this lesion among the Indians of Latin America, and among Chinese coolies, races noted for an apathetic attitude to life. He also quotes Draper and Touraine[5] as finding typical of their patients a state of mind such as Adler calls "the masculine protest".

Though Alexander's studies at Chicago confirm these observations, he was not content to accept this as the final explanation; but, by investigating more completely, discovered that the ambitiousness and emphasis on masculinity is merely over-compensation for underlying passivity and submissiveness, this finding being another instance of the psychoanalytical principle that any over-determined impulse is a repudiation of a deeper one in the opposite direction.

In other words these patients behave in an exaggeratedly aggressive way, precisely because of strong unconscious desires to be submissive.

The individual who behaves in an over-aggressive manner creates an environment in which the hostility of those he attacks tends to produce anxiety in himself. This in turn recreates the unconscious wish to be comforted which is again repudiated and transformed into aggressiveness. The whole process, then, constitutes a vicious circle.

The result of this state of affairs is that, as his persistent desire for consolation is denied conscious psychological gratification, it must necessarily express itself physiologically in a chronic condition of gastric over-activity, the desire for comfort having been converted into the desire for food, considering that these two impulses were identified by experiences during the act of suckling at the maternal breast. The persistent desire for food causes hyperacidity and hypermotility, which by constituting the physiological basis of such symptoms as post-prandial pain, leads to the diagnosis of dyspepsia. When the vicious circle has lasted for sufficiently long a time, an additional factor (perhaps an infection) transforms the functional into an organic lesion, and ultimately allows a peptic ulcer to form. Knud Faber believes that the development of a peptic ulcer is always preceded by a condition of chronic gastritis. If this is so, the gastritis would constitute a link in the chain of causation intermediate between dyspepsia and ulceration.

Since Alexander commenced the studies which confirmed and expanded the observations of previous workers, Millais Culpin has announced opinions of a like nature in an article published in *The British Medical Journal* of July 20, 1935. In addition to his own statements, he quotes Harold Dodd as saying that peptic ulcers are significantly prevalent among those who drive vehicles and drive themselves.

As the unconscious submissive attitude of mind discovered by psychoanalysis is so important, the next step is to consider how it arises. For clearness of exposition its development will be described as occurring in a male patient only. Psychoanalytical observation has established the fact that when weaning is carried out too rapidly it leads, on the part of the child, to a hostile response which has been given the technical name of oral-sadism. Other forms of oral deprivation also lead to sadistic responses, some of which may arise at as early an age as six months, and probably even earlier. All oral-sadism is cannibalistic in nature, and may be, in part, the revival ontogenetically of phylogenetic impulses.

The baby's cannibalistic urges lead to fear of retaliation on the part of the mother, that is, anxiety concerning the danger of being eaten. In consequence of this he develops, in addition to the aggressiveness, an attitude of renunciation which might be described as a negative conditioned reflex. This double emotional attitude to the mother is known as ambivalence, and the renunciatory submissiveness as a masochistic reaction.

Individuals who have been exposed to frustrated conditions of feeding during the formative period of babyhood, continue ever afterwards to react in an ambivalent manner, especially when the satisfaction of any instinctive urge is threatened.

Because the masochistic reaction is first formed in association with the mother, it later acquires inhibition as expressing incestuous urges, which inhibition is finally completed at about six years of age and is known technically as repression. It is the repressed masochistic reaction which is responsible for the symptoms of dyspepsia, associated as they are with a persistent desire to be fed by the mother and so to be comforted.

An observation made at the Chicago Institute, which confirms the fact of repression of oral impulses, is that sufferers from gastric symptoms reported more dreams which expressed the wish to receive food than occurred in other classes of patient, a statement which is, no doubt, related to the finding by other observers of high nocturnal acidity in cases of duodenal ulcer.

### *The Colitis Type.*

Those individuals who suffer from colitis of psychological origin (including mucous colitis) behave in exactly the opposite way to those who suffer from psychogenic gastric disorders. They are submissive rather than aggressive, and conduct their life in such a way as indicates the desire to receive rather than to give, as do the gastric type. In other words, in the colitis cases it is the aggressive impulses which are repressed rather than the masochistic ones; the sadism, however, is expressed physiologically by the symptom of diarrhœa, the fæces being unconsciously regarded as a powerful weapon. This state of affairs comes about as a reaction in infancy to unnecessary interference by the mother with the function of defæcation. It is as if the boy were to say to himself: "I'll be good and pass my fæces, but I'll have my revenge by passing too much."

Thus arises an anal-sadistic expression of incestuous desires, which is neutralized in the typically ambivalent manner of pregenital impulses by submissiveness in the sphere of conscious behaviour.

### *Chronic Constipation.*

The psychological factors involved in constipation express both facets of the ambivalence in the symptom itself, rather than by expressing one only as in gastric and colitis cases. On the one hand, retention of fæces expresses the desire to save the mother from injury by the dangerous fæces, but, on the other hand, it also expresses the sadistic wish to resist interference.

Both the anal-sadism and the reaction from it express incestuous desire precisely because they arise in relation to the mother; and, having arisen, become subsequently bound up with the Œdipus complex. Individuals who exhibit this type of alimentary disturbance in later life, indicate by their behaviour a return to the impulses which were formed during the second or late anal phase of development. Colitis, however, is due to disturbance of the first anal phase, and gastric disorder is the result of inability to surmount adequately the oral phase. Chronic constipation, then, represents an advance on the other two alimentary illnesses, arising as it does at a later stage of development.

During the oral phase the infant not only expresses its libidinous impulses by wanting to eat, but defends itself from danger by these cannibalistic phantasies. Similarly, during the first anal phase diarrhœa constitutes a defence against anxiety because of the phantasy that fæces can protect the ego from danger. Lastly, during the second anal phase retention of fæces, in addition to being an incestuous gratification, is also a defence against the fear of being disembowelled.

Once developed, that mode of defence on which the infant habitually relies is subsequently called into action whenever environmental conditions are unusually stressful. Those who have learnt to rely on the third mode of defence, however, may regress to the first anal phase if exposed to excessively frightening conditions, or even to the oral phase if the expulsive method of overcoming anxiety is inadequate. In the same way those patients who alternate between constipation and diarrhœa, or those who suffer from gastric symptoms in addition to the diarrhœa, employ more than one method of overcoming anxiety.

Thus it will be seen that all three forms of psycho-physiological behaviour constitute a defence of the ego as well as an expression of the impulses of the id; the latter modified by inhibition from the super ego.

Psychoanalysts, and Freud in particular, have been accused in the past of recognizing only one instinctive urge—the sexual. Earlier in this paper another instinct has been indicated, one which is sometimes known as an ego instinct. This impulse would never have been appreciated in its due proportion unless the sex instinct had been studied first, because the existence of the Œdipus complex constitutes, as it were, a façade behind which the vast majority of infantile memories lie hidden. These have to be revived before all the experiences of life can be met by rational adjustments rather than by rationalizations.

### *Therapeutic Results.*

It will be obvious from what has been said about the relationship to the three phases of pregenital development that the results of psychoanalysis on individuals suffering from the different types of alimentary disorder would be expected to be in inverse order to that of their origin. In other words the anal type would be likely to respond best, and the gastric type be the most resistant. This was found to be so in practice. Even in cases of duodenal ulcer, however, healing occurred in some patients who underwent psychoanalysis without recourse to any pharmaceutical or dietetic treatment; and in other disorders the results were even more suggestive.

### Respiratory Disorders.

Before the Chicago Institute commenced systematic investigation of respiratory disturbances, individual psychoanalysts had observed instances of the respiratory function being utilized by psychoneurotic patients in order to express unconscious impulses; but, even if this were not so, the commonly found association of emotion with respiratory changes such as is indicated by the phrase "gasping with fear" would have pointed the way to such a study. It is possible, for instance, that the colloquial expression mentioned represents an expression of the desire to overcome anxiety orally, such as is observed in the gastric type of alimentary case, but displaced, because of inhibition of this impulse, to the respiratory system, though, be it noted, still expressed by employing the common aperture of both systems—the mouth.

A fact which supports the theory that respiratory symptoms may express unconscious oral impulses is that the antigens most commonly responsible for asthma are foodstuffs, and that of these perhaps the most common—milk—is the food around which rages the greatest mental conflict, associated as it is with cannibalistic-masochistic phantasies. These speculations are borne out by the fact that when vital capacity records were obtained at the Chicago Institute it was observed that, because of hesitation in commencing inspiration, some individuals repeatedly produced a characteristic curve possessing what were called "rounded respiratory tips". This type of record was most frequent in patients whose psychoanalytical history indicated strong oral conflict.

That asthma may be an hysterical manifestation is suggested in addition to what has already been said by the fact that the animal phobias often observed as a symptom of anxiety hysteria are associated with just those animals whose emanations are commonly productive of asthma, such as the horse and the cat.

### Sexual Disorders.

Though special attention was paid to cases of dysmenorrhœa at the Chicago Institute, amenorrhœa, menorrhagia, leucorrhœa, frigidity, sterility, abortion and *post partum* hæmorrhage also constitute a fruitful field for psychoanalytical research. Such disorders illustrate the predominant tendency in women for inversion of the Œdipus complex (homosexuality) to act as the basic cause of psychosexual disturbances, because the majority may be regarded as expressing denial of the feminine rôle. Though it was the sexual disorders of women which were studied at the Institute, it must be obvious that male sexual disorders such as impotence should also be systematically studied in order to confirm the findings of individual psychoanalysts.

### Convulsive Disorders.

A patient suffering from *petit mal* was induced to recount a dream that accompanied a seizure which occurred in the presence of the psychoanalyst. From this and other observations the conclusion was drawn that the attack constituted a wish-fulfilment, and that *petit mal* is a condition which is equivalent to somnambulism (another instance of an acted dream).

*Grand mal* should provide interesting material for future study, and also migraine—an intermediate condition, probably, between the epilepsies and hypertensions, with which every psychoanalyst is conversant as an hysterical symptom.

### Hypertension.

By taking blood pressure readings before and after every analytical session, evidence of correlation between the changes in pressure and of emotion was obtained in that disorder known as hypertension. In the future it is intended to make records during the course of the sessions also.

As hypertension usually arises in middle age, and as psychoanalysis is more difficult to carry out after forty years, it would appear that the best way to obtain evidence for and against the possibility of a psychological origin for this disorder would be to compare its incidence among those who have and those who have not undergone psychoanalysis in early life. This will be possible in the future when sufficient analyses have been done to make statistical results feasible. As, however, the prognosis is so serious in this complaint, it would surely be worth while for patients in the early stages to undergo psychoanalysis in the hope that, by abolishing or reducing unconscious anxiety, the physical factor which is postulated as a partial cause would be forestalled.

Patients whose symptoms suggest, rather than indicate, the diagnosis of *angina pectoris* or of coronary occlusion, would also repay a psychoanalytical approach, considering that pain in the cardiac region and alteration of heart rate constitute commonly observed psychoneurotic symptoms.

### Endocrine Disorders.

The psychoanalysis of a woman with pituitary dysfunction suggested the possibility that her state was the result of unconscious impulses similar to those responsible for less pronounced psychophysiological disorders, namely denial of the biological rôle appropriate to her sex.

Though the Chicago research is as yet merely suggestive, the fact remains that the cause of the vast majority of endocrine disorders is still unknown, and, even in those few cases in which a tumour exists, the question remains unanswered: "What causes the tumour?" Equally relevant in those cases in which hyperplasia exists is the query: "What causes the hyperplasia?"

The obvious way to test the possibility of psychogenesis is for patients with early endocrine disorder to undergo psychoanalysis in the hope of relieving the condition.

It is possible that like other forms of mental deficiency (though, of course, not all), hypothyreoidism may constitute a defence against unconscious anxiety. If this be so, the effect of analysis could be controlled by serial intelligence tests, in addition to the ordinary physical observations made in thyreoid cases. If a hyperthyreoid patient should be considered unsuitable for surgical treatment, or adjudged a bad risk, psychoanalysis might prove valuable in quickly relieving anxiety as it does in psychoneurotic patients when passing through anxiety states.

### Infections.

Every psychoanalyst has the experience of noticing a reduced susceptibility to infection in consequence of successful analysis. This result constitutes a rebuttal of the perennial taunt that our profession is powerless to treat a common cold, because reduction of the number of coryzal and influenzal attacks constitutes, as it were, a constant by-product of psychoanalysis. That the increased immunity is not coincidental is borne out by the fact that the opposite state of increased susceptibility occurs during the negative phase of analysis when all the patient's symptoms temporarily get worse.

It will be obvious that if *diabetes mellitus* is not wholly or partly psychogenic, as is quite within the bounds of possibility, reduction of intercurrent infections by psychoanalysis should have the effect of improving sugar tolerance. Regeneration of islet tissue, however, would not be any more surprising than the healing of duodenal ulcers—a result which has already been demonstrated.

### "Accidental" Injuries.

While patients are undergoing psychoanalysis, they injure themselves more often during periods when guilt concerning forbidden wishes is being ventilated than they do at other times. When the wish for self-punishment is especially strong, a fatal accident may occur, which is, in reality, an unconscious suicide; but, when less pronounced, a sprained ankle or similar happening may be sufficient to annul the guilt. These acts usually occur between sessions, but occasionally they are staged before the analyst's eyes.

### Surgical Operations.

The unconscious wish for punishment also explains the fact that surgical operations are desired by psychoneurotic patients; and if such individuals find a surgeon whom they succeed in deceiving, their masochistic impulses will be gratified in reality. The writer has seen a patient whose arms were unnecessarily sacrificed because they were amputated in the expectation of relieving pain which proved to be psychogenic.

### Conclusion.

Though it is not to be thought that other forms of psychotherapy than psychoanalysis are incapable of producing results in such disorders as have been mentioned, the fact that psychoanalysts are already engaged in systematic research is, in itself, evidence that these workers possess more confidence in their methods than do other practitioners. Even in this audience there may be some who consider such study entirely useless, but it is the opinion of the writer that there is already sufficient evidence to warrant notice and to justify the hope of proof in the distant future.

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# AUSTRALIAN TYPHUS, WITH A REPORT OF A FATAL CASE.

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ENDEMIC typhus has been a notifiable disease in this State (New South Wales) since 1927. We can find only one case reported in THE MEDICAL JOURNAL OF AUSTRALIA,[1] yet Dr. Wallace, of the New South Wales Department of Public Health, has been good enough to inform us that there have been approximately twenty-nine cases brought to his notice or officially notified. The first case was mentioned by Adey in his report,[2] and occurred at Lismore in northern New South Wales in 1927. The annual incidence since it was first recognized in New South Wales has been as shown in Table I.

TABLE I.
*Cases of Endemic Typhus Recognized in New South Wales since 1927.*

| Year. | Number of Cases. | | |
|---|---|---|---|
| | North Coast. | Sydney. | Total. |
| 1927 .. .. .. | 1[1] | 0 | 1 |
| 1928 .. .. .. | 1 | 0 | 1 |
| 1929 .. .. .. | 3 | 0 | 3 |
| 1930 .. .. .. | 0 | 2 | 2 |
| 1931 .. .. .. | 0 | 1 | 1 |
| 1932 .. .. .. | 0 | 2 | 2 |
| 1933 .. .. .. | 2 | 1 | 3 |
| 1934 .. .. .. | 5 | 2 | 7 |
| 1935 .. .. .. | 4 | 5[2] | 9 |
| In nine years .. .. | 16 | 13 | 29 |

[1] The 1927 case is reported by Dr. Adey, but was not notified in New South Wales.
[2] One 1935 case included here was not notified till January, 1936.
NOTE.—We have reason to believe that the incidence and mortality are higher than are shown in the records of the Department of Public Health. We hope that medical practitioners may by correspondence, either with us or the Editor of this journal, bring to light further incidence or mortality.

By "North Coast" is meant the extreme north-eastern corner of New South Wales, centring round Lismore, Kyogle *et cetera*. By "Sydney" is meant the metropolitan area; the patients lived in widely separated suburbs and in the city, and some were apparently infected in the city and some in the suburbs. The disease appears, from Table I, to be on the increase both in Sydney and on the North Coast, but has not, as far as we can ascertain, appeared elsewhere in this State. Perhaps also the disease is more often recognized for what it is. Personally, one of us (A.H.T.) is inclined to believe from his own experience that the incidence in Sydney is increasing. He has often, since F. S. Hone's reports, sought to obtain the Weil-Felix reaction in fevers of doubtful nature, but without success till 1935 (two cases). Yet the disease has been endemic in South Australia for many years, whilst, on the other hand, in Victoria, if we agree with Penfold and Butler in rejecting the case reported by Penfold and Corkill,[3] only one case has been reported (Lawton and Murray[4]), and that only recently (1933), and the patient was not infected in Victoria.

Though no medical men in practice in New South Wales, excepting E. L. Newman, have written on this disease, there is some account of the first seven cases by E. S. Morris in the annual report of the Director-General of Public Health for 1930. Two fatal cases have previously occurred. One was a woman, aged thirty-five years, living at Queenscliffe (1932); the second was a boy of seven years, living at Lidcombe (1933). The present report therefore deals with the third known fatal case in this State.

Adey's report appears to be an almost complete summary of Australian cases up to 1930, and contains a classified bibliography up to that date. We have added subsequent references[7][8][9] found in THE MEDICAL JOURNAL OF AUSTRALIA.

## Report of Case.

*History and Clinical Findings.*

In August, 1935, some ceilings in a warehouse were pulled down, and it is now thought that this caused rat disturbance. Rat infestation in this warehouse was present, but was not marked. Several men were engaged in repacking work. One took ill at the end of August and was away for about a month with an influenzal type of illness. When investigated, his blood did not give the Weil-Felix reaction. At the end of October another man went off sick, subsequently gave the Weil-Felix reaction in high dilution, and recovered. The third patient is the subject of this report. All three were employed in the same warehouse, but lived in widely separated suburbs.

The patient, a man, aged forty-four years, was first seen by one of us (J.C.H.) on November 4, 1935. He stated that three days previously he had experienced general pains in the body and extremities, with headache and a chilly sensation suggesting an attack of influenza. On examination the face was rather flushed; there was some congestion of the conjunctivæ; the tongue was very dry, coated and tremulous. There was marked tremor of the hands, and the patient had an anxious, almost frightened expression. The temperature was 38·9° C. (102° F.) and the pulse rate 120 per minute. Examination of the lungs revealed no abnormality, and palpation of the abdomen did not reveal any splenic enlargement. Salicylate of soda was prescribed.

On November 5, the fifth day of the illness, the temperature was 39·4° C. (103° F.), the pulse rate was 120 to 130 per minute, and the rhythm was somewhat irregular. The patient's appearance was unchanged; the tongue was very dry and coated; the bowels were well opened; the stools appeared normal. A few typhoid-like spots were present on the abdomen and back. A digitalis mixture was ordered in addition to the salicylate of soda prescribed on the previous day.

On November 6, the sixth day of the illness, his condition was much the same; but there was now a marked and profuse macular rash on the abdomen, back, chest and extremities. He declined to enter hospital.

During the next few days his condition remained almost stationary; but the rash became more marked, most of the spots being now of a dirty bluish petechial character. The spleen was not palpable.

On November 12, the twelfth day, his condition was much improved; the pulse rate and temperature were normal, and the patient felt very well and wanted to get up. The rash was commencing to fade.

The patient informed his medical attendant that a fellow employee had been suffering from a similar illness and was under the care of Dr. Harold A. McCredie, of Campsie. The medical attendant telephoned Dr. McCredie and told him about this patient's illness, and stated that he suspected typhus fever, and it was agreed that it would be advisable to have a Weil-Felix test carried out in both cases.

On November 14, the fourteenth day, his condition was worse again, due either to relapse or complications. The temperature was 38·9° C. (102° F.) and the pulse rate 120 per minute. He was sent to Saint Vincent's Hospital with a provisional diagnosis of typhus, under the care of Dr. O. A. Diethelm.

On November 15, the fifteenth day of the illness, Dr. McCredie telephoned to say that the Weil-Felix reaction had been obtained with the blood of his patient. The matter was discussed with the city health officer, who stated that there were now possibly three cases, and all were employees of the one firm.

On admission to hospital the patient was obviously very distressed. No rash or spots were now found "on any part of the body or limbs". The tongue was slightly coated, but moist; the abdomen was distended, but not tender. The base of the right lung was dull on percussion and vocal resonance and breath sounds were diminished over it; there were no crepitations; no abnormality was detected elsewhere in the lungs; the apex beat was not palpable; the heart sounds were distant, but there were no murmurs. The pupils were semi-dilated, equal, and active to light and accommodation; the knee jerks were present and equal; the ankle jerks were absent. Nothing abnormal was detected in the urine; the specific gravity was 1,023; the reaction was acid and the colour was dark amber. The pulse rate was 100 and respiration rate 24 per minute, and the temperature was 36·1° C. (97° F.).

On the sixteenth day his temperature was subnormal, but rose to 37·8° C. (100° F.) in the evening. He was very drowsy.

On the seventeenth day his temperature was again subnormal, but rose to 38·9° C. (102° F.) in the evening. He now complained of pain in the right costo-vertebral angle. On the eighteenth day the temperature was 37·5° C. (99·5° F.) in the morning, but rose to 40° C. (104° F.) in the evening, and he was still drowsy and still had pain. On the nineteenth morning he had excessive perspiration, commencing at 1 o'clock, rapid respiration, rapid, weak pulse and cold extremities; he died at 5.45 o'clock.

The pulse rate rose throughout more or less with the temperature, but was on a somewhat higher level (on the last evening 150 to 170 per minute), in contradistinction to the pulse rate in typhoid fever. The respiration rate on the fifteenth and sixteenth days was 20 to 28 per minute, but rose to 40 on the seventeenth and still higher on the eighteenth day.

A blood count on the eighteenth day showed no anæmia or changes in the red cells, but a leucocytosis of 30,000, which appears to be too high for uncomplicated typhus.

The differential leucocyte count was as follows:

| | |
|---|---|
| Neutrophile cells— | |
| Young forms | 1% |
| Band forms | 7% |
| Segmented | 72% |
| Total neutrophile cells | 80% |
| Lymphocytes | 14% |
| Monocytes | 6% |
| Eosinophile cells | Nil |
| Basophile cells | Nil |
| | 100% |

*Autopsy.*

The body was that of a large and heavy man. A dark red mottling of the skin of the dependent and lateral aspects of the trunk was considered to be *post mortem* lividity. The body was of an unusual temperature, considering that autopsy was performed eight hours after death.

The right pleural cavity contained a moderate amount of bloody fluid, and there were numerous petechial hæmorrhages under the parietal pleura. Fluid and hæmorrhages were absent from the left pleura. The lower lobe of the right lung was plum-coloured, and on bisection showed a large, firm, hæmorrhagic, almost black, cut surface containing also a firm greyish area. The firm black and grey infarct-like portions shaded off into dark, airless, but less firm lung tissue. The right upper lobe showed no such lesions. The left lower lobe was firmly adherent to the diaphragm; but no relevant lesions were found in the left lung.

The heart appeared to be in good condition. There was soft agonal clot in the right chambers and extending into the pulmonary artery, but no *ante mortem* embolus or thrombus. There was a little fluid in the pericardium; but there were no hæmorrhages in pericardium or endocardium.

The liver was not significantly enlarged, but was rather soft, friable and pale, suggesting fatty infiltration and cloudy swelling.

The spleen was only slightly enlarged; the capsule showed numerous minute pale spots not suggesting miliary tubercles, and the cut surface was soft like a septic spleen.

The kidneys were somewhat large and swollen, and the cut surface of the cortex was pale. The adrenal glands showed no obvious lesions.

There were no hæmorrhages in the peritoneum or in the abdominal viscera. The large intestine was considerably distended and the appendix was about 15·0 centimetres (six inches) long, but free and not inflamed.

The brain showed congestion of surface vessels and increased fluid in the sulci; but no lesions were seen on dissection.

*Microscopical and Bacteriological Examinations.*

The histological and bacteriological examinations were not adequate for the confirmation of a diagnosis of typhus, as for various reasons only routine methods were employed, but certainly they are worth noting. Examination of sections of different areas of the lower lobe of the right lung showed widespread hæmorrhage and tissue changes, varying from toxic spoiling to almost complete necrobiosis of whole areas, with breaking down of alveolar walls. The hæmorrhages appeared for the most part to be of some days' duration. In severely damaged areas the blood vessels were involved and, in some, portions of thrombi remained in the section. In other areas, particularly the greyish area, a leucocytic exudate filling the alveoli was the predominant feature, and often the alveolar walls were broken down in these areas. Cultures on blood agar from the cut surface gave numerous colonies of non-hæmolytic streptococci and fewer colonies of Gram-negative bacilli. The pulmonary lesion appears to be best interpreted as infarction, hæmorrhage and secondary pneumonitis. Having regard to the pathology of typhus, it would seem that the infarction probably followed the vascular damage of this infection and that the clinical relapse and death were due to vascular lesions followed by bacterial invasion of the affected tissue. Sections of the kidney showed some engorgement of tuft capillaries, but no marked pathological changes; nor did sections of the liver reveal anything but a few small round cells in Glisson's capsule and slight to moderate fatty changes. Cultures on blood agar from the spleen gave only colonies of Gram-negative bacilli (now thought not to be a *Bacillus proteus*, but insufficiently investigated).

Owing to some misunderstanding and the intervention of the week-end, the Weil-Felix reaction was not investigated during life; but at autopsy the heart blood was centrifuged and the serum placed in a refrigerator.

*Agglutinations.*—The serum obtained at autopsy did not agglutinate emulsions of *Bacillus typhosus* in dilutions between 1 in 20 and 1 in 160. Nor was there any agglutination of fresh saline emulsions of *H* or *O* cultures (Felix) of the Kingsbury strain of *Bacillus proteus*, nor of alcoholized emulsions prepared by Bien's method. The *X*19 strain, both *H* and *O* (Felix), was agglutinated, however, by serum dilutions down to 1 in 640. With Bien's method there was little precipitation by alcohol from the *X*19 cultures; but saline dilutions of the alcohol-treated emulsions gave typical granular *O* agglutination in serum dilutions down to 1 in 320 after four hours at 37° C. in a dry incubator.

### Discussion.

W. J. Penfold has rightly drawn attention to the question of the technique of the Weil-Felix reaction and its interpretation. In the case reported by Penfold and Corkill[3] there was agglutination to approximately the same titre of both *X*19 and Kingsbury. This is a distinctly unusual finding in typhus. Adey states that only very occasionally did a serum agglutinate both the "indologenous" and "non-indologenous" strains. Penfold thereupon sent the serum to Felix, in London, who reported that it was not the serum of a genuine case of typhus, and Penfold and Butler published this correction[5] in a discussion of the case reported by Lawton and Murray.[4] In the latter case, however, the serum agglutinated *X*19 and not Kingsbury, though it was not stated by Lucy Bryce, who did the agglutinations, whether the agglutination was of the *H* or *O* type. On rereading the case report of Lawton and Murray, one is struck by its resemblance to other case reports of endemic typhus, and after all we must admit that Penfold and Butler's criticism would apply even more aptly to almost all the published accounts of this disease in Australia. L. B. Bull employed fresh saline emulsions of *X*19 for the South Australian cases reported by F. S. Hone, at any rate before Kingsbury came to be employed, and he did not definitely specify the type of agglutination, though he has had perhaps more experience in this work than anyone else in Australia. This applies also to the Toowoomba cases reported by Wheatland. A. Felix and M. Rhodes[6] found, however, that serum from a South Australian case sent to them by L. B. Bull, of Adelaide, agglutinated *X*19 *O* to a serum titre of 1 in 20,000 and gave no significant agglutination of Kingsbury. We are not aware of any published reports in Australia in which either *O* cultures or alcoholized emulsions have been used, though R. Mathew, W. C. Sawers and others have been employing them recently in the investigation of tropical typhus. Doubtless other workers, however, are now employing the stricter methods advocated particularly by Felix, to which Penfold and Butler have drawn attention. The inoculation of animals has not been successful in the hands of Wheatland, and, owing to delays in diagnosis, was not carried out in this case. This work, as far as we know, yet remains to be successfully done in Australia.

In the tabulated serological results for Australia compiled by Adey[2] in 1930, there are only nine reactions with Kingsbury and eighty-three with *X*19. Six of the former were obtained in Townsville, apparently from tropical typhus or coastal fever cases. The remaining three were obtained in South Australia and Western Australia; but it is not clear whether there were cases in which only Kingsbury was agglutinated or whether both it and *X*19 were agglutinated, as in Penfold and Corkill's case. The great majority, however, of positive sera from patients residing in southern Queensland, New South Wales, Victoria, South Australia and Western Australia, gave the reaction with *X*19 and not Kingsbury, whilst in Townsville six gave the reaction with Kingsbury and only four with *X*19. This predominance of Kingsbury agglutination in north Queensland has been recently confirmed by Unwin and Mathew in a larger series. Kingsbury and not *X*19 agglutination has also recently been found by Gunther[9] in the Territory of New Guinea.

### Australian Endemic Typhus and Brill's Disease.

Though it would seem that Australian endemic typhus and Brill's disease resemble each other very closely in their clinical features, serological reactions and non-participation of the louse as vector, yet the explanation of Brill's disease as a recrudescence in America of an earlier European typhus infection does not apply to Australian typhus, and the latter should not be described as Brill's disease.

### Summary.

The clinical, serological and *post mortem* findings in a fatal case of endemic typhus arising in Sydney are reported. The twenty-nine cases reported or notified in New South Wales in the last nine years are tabulated and shown to be restricted to two widely separated areas, the metropolitan area of Sydney and the far north-eastern corner of New South Wales, bordering on Queensland. The disease appears to be on the increase in both of these districts. A similar curious distribution occurs in the south and west of Australia; for we know of no cases reported from Victoria, and yet there are endemic foci in South Australia and in Western Australia older than those in New South Wales.

### Acknowledgements.

We have to thank Dr. H. G. Wallace, of the New South Wales Department of Public Health, Dr. R. Mathew, of the Commonwealth Health Laboratory at Cairns, and Dr. W. C. Sawers, of the School of Public Health and Tropical Medicine, Sydney, for valuable information and cooperation.

### Addendum.

Since completing this paper, one of us (A.H.T.) has obtained (January, 1936) the Weil-Felix reaction in the blood of a young man living at Manly and employed in a Sydney warehouse, and whose illness was, on clinical grounds, diagnosed as typhus by Dr. Harold Thomas and Dr. A. Holmes à Court. *Bacillus proteus X*19 in saline emulsions was agglutinated to a serum titre of 1 in 160, and alcoholized emulsions to a titre of 1 in 320. Kingsbury was not agglutinated by 1 in 40 serum.

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(1) E. L. Newman: "Endemic Typhus Fever", THE MEDICAL JOURNAL OF AUSTRALIA, July 12, 1930, page 50.
(2) C. W. Adey: "Report on Endemic Typhus", the Commonwealth Department of Health (Government Printer), Canberra, 1930.
(3) W. J. Penfold and A. B. Corkill: "A Case of Typhus-Like Fever", THE MEDICAL JOURNAL OF AUSTRALIA, September 8, 1928, page 304.
(4) F. B. Lawton and Alan Murray: "Endemic Typhus (Brill's Disease)", THE MEDICAL JOURNAL OF AUSTRALIA, June 24, 1933, page 773.
(5) W. J. Penfold and H. M. Butler: Letter to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, August 5, 1933, page 195.
(6) A. Felix and M. Rhodes: "Serological Varieties of Typhus Fever", *The Journal of Hygiene*, Volume XXXI, 1931, page 225.
(7) D. A. A. Davis: "A Typhus-Like Case Occurring in the Brisbane Area", THE MEDICAL JOURNAL OF AUSTRALIA, June 7, 1930, page 748.
(8) W. S. McGillivray: "Brill's Disease or Pseudo-Typhus", THE MEDICAL JOURNAL OF AUSTRALIA, December 5, 1931, page 716.
(9) C. E. M. Gunther: "Endemic Typhus in New Guinea", THE MEDICAL JOURNAL OF AUSTRALIA, June 29, 1935, page 813.

# Reports of Cases.

## AUSTRALIAN TYPHUS: A CASE WITH RECOVERY.

By A. H. Tebbutt, D.S.O., V.D., B.A., M.B. (Sydney), D.P.H. (Oxon),

and

D. A. Warden, M.B. (Sydney),

*Sydney.*

### Clinical Description.

The patient discussed in this report was a woman, aged fifty-five years, who, when first seen, said that she had not been feeling well for about a week and that she had been drowsy and feverish for two days. She had taken her own temperature, which had been 38·3° C. (101° F.) on these two days.

Examination showed that she had a temperature of 37·8° C. (100° F.) and a pulse rate of 100 per minute, her tongue was coated, but nothing further was elicited, and a tentative diagnosis of influenza was made. On the following day (the fourth day of fever) her temperature reached 38·9° C. (102° F.), the pulse rate was 100 per minute, and she was more lethargic and very drowsy. She had diarrhœa, with fluid motions (not a usual finding in endemic typhus), and was removed to hospital. On the fifth day she had a rigor and was very drowsy and slightly confused; her tongue was dirty and her abdomen distended. The motions were of the "pea-soup" variety. Scattered over the abdomen and back was a reddish macular rash, not hæmorrhagic. There was no enlargement of the spleen.

On the sixth day she was again very drowsy and confused, said she wanted to sleep, and was difficult to rouse. The temperature, at first intermittent, now showed only remissions. The tongue was still dirty, the abdomen doughy, and the stools were still of "pea-soup" type. The rash was still present. She appeared to be in many respects a typical case of typhoid fever, and was treated as such. Nothing pathological was found in the urine.

On the seventh day her condition was much the same. The temperature reached its highest point, 39·4° C. (103° F.), on this and again on the next day (see Chart I).

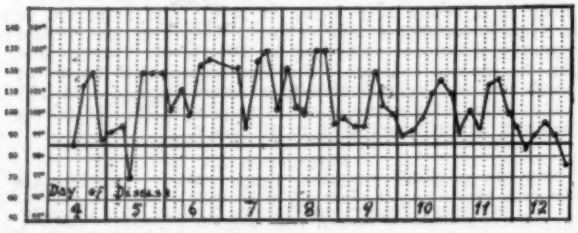


Chart I.

On the eighth day her condition was unchanged; the rash was still present on the abdomen and back, but was beginning to fade now and was more rusty than red. The temperature throughout was higher in the afternoon than in the morning. The pulse rate remained about 100 per minute through the height of the fever.

By the eleventh day the fever was definitely on the wane. She was still very drowsy, but quite rational. The rash had disappeared, the abdomen was doughy, and there was no enlargement of the spleen. The stools were still of "pea-soup" type.

On the twelfth day the temperature reached normal for the first time for a week, but rose again to 37·6° C. (99·6° F.) in the afternoon. On the thirteenth day her tongue was cleaner and her abdomen softer, and she was not so drowsy. The temperature was down in the morning, but rose to 37·8° C. (100° F.) in the afternoon.

On the fourteenth day the temperature rose only to 37·2° C. (99° F.), and this was the end of the fever. The pulse rate had fallen to 90 per minute. The patient complained of headache and pain in the back of the neck; otherwise she seemed quite well.

On the fifteenth day she was feeling very well; the temperature was normal, the abdomen soft, and the stools were semi-formed. Thereafter convalescence was soon established, she quickly regained appetite and strength, and made an uninterrupted recovery.

### Pathological Investigations.

#### *Leucocytes.*

On the seventh day of the disease there were 5,300 leucocytes per cubic millimetre; but on the eleventh day the number had risen to 11,300 per cubic millimetre. The differential counts were as shown in Table I.

Table I.

*The Differential Leucocyte Counts on the Seventh and Eleventh Days.*

| | Seventh Day. | | Eleventh Day. | |
|---|---|---|---|---|
| | Percentage. | Per Cubic Millimetre. | Percentage. | Per Cubic Millimetre. |
| Neutrophile cells— | | | | |
| Young forms .. | 2 | 100 | 0 | |
| Band forms .. | 34 | 1,800 | 16·0 | 1,800 |
| Segmented forms | 38 | 2,000 | 27·0 | 3,050 |
| Total Neutrophile cells | 74 | 3,900 | 43·0 | 4,850 |
| Eosinophile cells .. | 0 | — | 0·5 | — |
| Basophile cells .. | 0 | — | 0·0 | — |
| Monocytes .. .. | 3 | 150 | 6·5 | 730 |
| Lymphocytes .. | 21 | 1,100 | 49·0 | 5,500 |
| Türk cells .. | 2 | 100 | 0·5 | — |
| Plasma cells .. | 0 | — | 0·5 | — |
| | 100 | 5,300 | 100 | 11,300 |

These two counts show a changing leucocyte reaction towards the end of the febrile period. At the height of the fever, that is, on the seventh day, there was a slight relative neutrophilia with a considerable shift to the left (36% of immature neutrophile cells); but by the eleventh day the segmented neutrophile cells had increased without any increase in the immature forms. The most striking change, however, is an increase of lymphocytes from 1,100 to 5,500 per cubic millimetre. It is possible that the halt in shift to the left and the lymphocyte tide after the first week is of good omen in this infection. We cannot find much detailed data on the blood picture in the literature available to us..

#### *Blood Cultures.*

Between 10 and 20 cubic centimetres of blood were taken into about 150 cubic centimetres of nutrient broth containing a piece of marble on the seventh day and on the eleventh day of the disease; but repeated subcultures during five following days proved sterile on blood agar.

#### *The Urine.*

No pus cells were present in the centrifuged deposit from urine taken on the eleventh day by catheter, and cultures gave only a few colonies of several varieties of bacteria considered to be a contamination. *Bacillus proteus* was not cultivated.

*The Fæces.*

A loose, somewhat "pea-soup" stool obtained on the eleventh day was plated on three McConkey plates. Only lactose fermenters grew. A blood agar plating gave also a few streptococcal or enterococcal colonies, as usual, and *Bacillus proteus* was not cultivated.

*Agglutinations.*

It must be remembered that the diagnosis in this case was at first distinctly obscure, and only by persisting in the agglutination method were results obtained. On the seventh day there was no agglutination of *Bacillus typhosus* or of *Brucella abortus* (several strains) in dilutions from 1 in 20 to 1 in 160, and negative results were again obtained on the eleventh day against these bacteria and also against the paratyphoid bacilli.

With regard to the Weil-Felix reaction, one of us (A.H.T.) was fortunate enough just at this time to find that Dr. W. C. Sawers, of the School of Public Health and Tropical Medicine, had received *H* and *O* cultures of *proteus* strains from the Lister Institute, and he very kindly offered subcultures of these types, from which emulsions were prepared. The results may be summarized as follows.

Kingsbury *H* and *O* were not agglutinated by serum taken on the seventh, eleventh or nineteenth day. *X*19 *H* and *O* were not agglutinated on the seventh day; but on the eleventh day serum dilutions out to 1 in 160 gave significant agglutination. On the nineteenth day the serum gave no significant rise in titre, but somewhat more complete agglutination. The Warsaw strain was an *H* culture from the School of Public Health and Tropical Medicine, not a recent importation. It was not agglutinated by serum on the seventh day; but serum on the eleventh and nineteenth days gave agglutination in dilutions of 1 in 160. Agglutinations were carried out by the macroscopic method in small glass tubes at 37° C. in a dry incubator, and readings were taken after two hours and four hours. Fresh emulsions in full saline solution were used and did not show spontaneous agglutination. Two other fresh sera from other patients (controls) gave no trace of agglutination of *X*19, *H* and *O*, in dilutions from 1 in 40 to 1 in 640. These same two sera and a third gave the same negative results against Kingsbury, *H* and *O*, and Warsaw. The serum of the patient was also put up against two other recently encountered *proteus* strains, one from the blood stream of a patient dying of a septic infection and the other from the female genitalia; but there was no evidence of agglutination.

As the agglutination results from this patient's serum showed a definite development under observation of the Weil-Felix reactions between the seventh and eleventh days, and yet the strains agglutinated were *X*19 and Warsaw, and not Kingsbury, whereas Dr. R. Mathew, of the Commonwealth Health Department at Cairns, had obtained just the opposite result in the investigations of tropical typhus published by Dr. M. L. Unwin,[1] it was thought desirable to have our findings checked by these workers. Serum was therefore sent to Dr. Mathew, who was kind enough to examine and report upon it. His findings are summarized here:

1. Alcoholized suspension of *X*19 *O* (Felix): agglutination, 1 in 125 complete, 1 in 250 partial.

2. Alcoholized suspension of the Kingsbury strain received originally from the Commonwealth Serum Laboratories: no agglutination.

3. Killed suspension of *proteus X*19 *O* alcoholized and preserved with formalin: agglutination, 1 in 250 complete.

4. Killed suspension of Kingsbury *O*, alcoholized and preserved with formalin: agglutination, 1 in 25 complete.

Suspensions 3 and 4 were received by Dr. Mathew in September from the Standards Laboratory of the Medical Research Council (England). On the other hand, serum from one of the north Queensland cases received from Dr. Mathew agglutinated our emulsions of Kingsbury, but not *X*19.

**Source of Infection.**

Dr. F. S. Hone, of Adelaide, who has contributed most to the recognition in Australia of a disease "closely resembling typhus fever", has drawn attention to disturbance of rodent population as an important factor in ætiology, and this has been verified also in Sydney, for example, in the case reported by E. L. Newman[2] and further discussed by E. S. Morris,[3] also in Case VII by Dr. Morris,[3] and in the two cases arising in the same warehouse reported by Hughes, Diethelm and Tebbutt in this issue, and in the case now under discussion. This patient lived in a good house in Woollahra, one of the best inner residential suburbs of Sydney. Next door was a large residence recently partly demolished to provide flats. Prior to her illness there had been some rat invasion of her home, justifiably attributed to rat disturbance. No other cases of this disease are known to have occurred in the neighbourhood before or since. This is the only suggestive information obtained by us, but it seems to be not irrelevant in the story of so-called endemic typhus in Australia.

**Summary.**

A case of endemic typhus is reported in a woman not engaged in any employment and living in a good house in a first class residential suburb.

The clinical features were fever of fourteen days' duration, lethargy and drowsiness, slight prostration, a rash at first somewhat resembling that of typhoid and appearing about the fifth day, "pea-soup" stools, and doughy abdomen, but no palpable splenic enlargement. The blood changes were at first a considerable shift to the left in the neutrophile leucocyte classification, but without leucocytosis, followed by a leucocytosis due to a lymphocyte increase. The Weil-Felix reaction was not elicited on the seventh day, but was present on the eleventh day. The strains *X*19 and Warsaw, but not Kingsbury, were agglutinated to a significant titre. Saline emulsions of *O X*19 (Felix) and alcoholized suspensions were also agglutinated.

**References.**

[1] M. L. Unwin: "Coastal Fever and Endemic Tropical Typhus in North Queensland: Recent Investigations, Clinical and Laboratory Findings", THE MEDICAL JOURNAL OF AUSTRALIA, September 7, 1935, page 303.
[2] E. L. Newman: "Endemic Typhus Fever", THE MEDICAL JOURNAL OF AUSTRALIA, July 13, 1930, page 50.
[3] E. S. Morris: "Report of the Director-General of Public Health, New South Wales, for the Year 1930", The Government Printing Office, Sydney, page 47.

## A CASE OF PELLAGRA.

By EDGAR H. M. STEPHEN, M.B., Ch.M. (Sydney),
*Honorary Physician, Royal Alexandra Hospital for Children, Sydney; Clinical Lecturer in Medical Diseases of Children, University of Sydney.*

**Clinical History.**

K.B., A BOY, six years of age, was admitted to hospital on June 12, 1935. He had been ill for ten months. The illness commenced with a rash on the body. There were anorexia, ulceration of the gums, and loss of weight and energy. He had had trouble with speech for eight months. There was nothing of note in the family history or in the health of the child previous to this illness.

On examination the child was of good colour, but in poor condition. He was unable to sit up or to make any attempt to walk. His mental condition was lachrymose in the extreme. No remark, whether serious or cheerful, could be made to him without the response of tears. His speech was of a hesitant character. The deep reflexes were brisk, there were areas of the skin of the trunk showing some alteration in hue and a branny desquamation, but the most arresting feature was the condition of the palms of the hands and the soles of the feet. The

outer half of these regions showed "a crazy pavement" effect, with a blackness as of lampblack in the cross-cut lines. It was this particular feature that made me suspect the presence of pellagra. In an endeavour to explain how disease depending on deprivation of vitamin *B* could have occurred in a child of six living in a prosperous district of New South Wales, I interviewed the mother in person at some length. The history she gave me of irritability, anorexia and profuse sweating, with burning pains in the hands, which he "worked together", suggested that pink disease might have been his original complaint. His mother was quite unable to induce the child to take anything beyond milk or beef tea for many weeks. It is therefore reasonable to suppose that this deficiency disease was the direct consequence of the anorexia of pink disease. He was given yeast, one drachm thrice daily, with dramatic results. His tears and gloom made way for a bright and happy manner. Within a fortnight he was up and running about. His palms and soles assumed a normal appearance. His method of speech had not quite recovered itself when I saw him last.

In more detail, the history I obtained from his mother stated that a rash came on the child's body ten months before his admission to hospital and extended up to his neck. The rash was not irritable; it came and went weekly. The child seemed worse when the rash was out. The child had marked anorexia and broke out into a profuse sweat when food was offered to him. He complained that his hands were burning, though they felt cold to his mother. He used to hold them up in the air to cool them and used to "work them together". There was marked insomnia; he kept grinding his teeth. For many weeks the only food he would take was a quart of milk *per diem* or a cup of beef tea. He was admitted to Newcastle Hospital with a history of cold shivers and sweats and with burning pains in the stomach and back. For two weeks he had been listless during the day and restless at night, with indefinite burning pains in the legs. On examination he had definite pallor; there were discrete mobile lymph glands in various regions. There were a macular erythematous rash on the abdomen and marked hypotonicity in the legs and abdominal muscles and back. He ran an irregular temperature of 37·3° to 37·8° C. (99·2° to 100° F.). He had a pustular rash on the soles of his feet and on the ulnar side of his palms, which healed in four weeks, leaving an ingrained appearance.

### Comment.

Pellagra is considered to be a deficiency disease in which there has been a deprivation of vitamin *B*. In an article on pellagra, by Hugh S. Stannus, in *Archives of Disease in Childhood*, April, 1934, a very lucid account of the disease in children is given. He emphasizes the fact that the children get irritable; there are changes in the skin, stomatitis and diarrhœa. Sometimes there is a rash which scales. There may be an erythema mild in degree and followed by a branny desquamation, as was present in this case. Black patches, as if the "area had been painted over with a layer of paint made of lampblack, which then becomes cracked and wrinkled, causing a crazy pavement effect. This peels off, leaving a pink, sometimes raw, surface beneath." He states that any part of the skin in pellagra may be affected and that any form of trauma or irritation may determine the site of the lesions. In my description I have borrowed the term lampblack from Stannus's article, and that of crazy pavement from Dr. Cicely Williams. Both expressions are apt beyond compare. Stannus suggests that a trial be given of yeast in the treatment of this complaint.

Dr. Cicely D. Williams gives an account in *Archives of Disease in Childhood*, December, 1933, page 423, of "A Nutritional Disease of Childhood Associated with a Maize Diet". This contribution, which is extremely interesting to read, stimulated Stannus to write the article above mentioned.

The descriptions of the rashes seen in pellagra mostly state that they appear in parts exposed to the sun. Stannus states that this condition is not essential. I was impressed by various points of similarity between pink disease and pellagra, such as the irritability, sweating and burning sensations in the extremities. There was no peculiarity in the diet of the child prior to this illness to explain the origin of pellagra without the intervening circumstance of pink disease.

### Acknowledgements.

I am indebted to Dr. Heathcote Russell and to Dr. K. W. Starr, of Newcastle Hospital, for the very helpful clinical notes which they supplied.

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## A FOREIGN BODY FREE IN THE PERITONEAL CAVITY.

By E. H. Freidman,
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Records of foreign bodies remaining in the hollow abdominal viscera and requiring surgical removal are now very numerous. However, histories of those lying free in the peritoneal cavity, except after perforation of the hollow viscus with an accompanying acute peritonitis, are not so numerous and this prompts me to record the following instance.

Master T.W., aged seven years, was brought to me by his mother on July 18, 1935, with the complaint of frequent bed wettings over the previous fortnight. During the day he had some slight frequency of micturition and complained of scalding, only during the act. Otherwise he was well. Except for a few mild gastric attacks that had yielded to home treatment, his past history was clear.

Examination revealed a well nourished, intelligent child, with nothing more than a little tenderness in the right loin. A mixture containing potassium citrate was ordered and his mother was told to report back in a week with a speciment of urine for testing. On July 23 he was returned, as in the early morning hours he had waked up screaming with pain in his "belly", was very feverish and had had several shivering attacks.

Examination now revealed a very sick child with dry, cracked lips, heavily coated tongue, and the heavy foul breath so typical of acute abdominal inflammatory conditions. His temperature was 37·4° C. (99·4° F.), pulse 120, and respiration rate 30. Abnormal signs were limited to the abdomen. There was slight distension and the whole abdomen was tympanitic. All the muscles of the right side of the abdomen were rigid and on guard. Tenderness was general, but points of exquisite tenderness were noted over McBurney's point and in the right costo-vertebral angle posteriorly. The "rebound phenomenon" was very marked. The urine showed a faint cloud of albumin and was heavily loaded with pus.

He was admitted to hospital for immediate operation. Under ether anæsthesia with the open method the abdomen was opened through a McBurney incision with splitting of the muscles. The appendix was easily located, lying over the brim of the pelvis. It was inflamed and somewhat œdematous; it was removed in the usual manner and the stump was inverted and buried. As the position of the appendix and the lack of any generalized peritonitis did not seem to account for the extreme upper abdominal tenderness and rigidity, two fingers were inserted through the wound for exploratory purposes and a foreign body was located lying in the right paracolic gutter. Gentle manipulation delivered the body, which proved to be a two and a half inch packing case nail markedly eroded. There was only a moderate amount of hæmorrhage in delivery. The head of the nail was lying downwards, buried in granulation tissue; the sharp end pointed upwards and was wrapped round with omentum, just beneath the transverse colon. No scar could be seen in the colon. The abdomen was free of adhesions and no other abnormality was found. A tube was inserted to the site of the nail head and brought out the lower end of

the wound, which was then closed. Within forty-eight hours the patient was comfortable and temperature and pulse had returned to normal, and the frequency, scalding and pyuria had almost completely ceased. The drainage tube functioned for thirty-six hours only and was removed in forty-eight hours. Convalescence was slow, but uneventful, and the patient was discharged from hospital in three weeks.

The main points to be commented on are, I think:

1. The complete absence of history of the ingestion of the nail and its presence within the peritoneal cavity without symptoms.

2. The lack of symptoms on perforation and complete healing afterwards without residual signs of localized peritonitis.

3. The not inconsiderable time the nail must have been present free in the peritoneal cavity, as shown by the great erosion of the nail and the amount of granulation tissue burying the head.

4. The attack of acute pyelitis, which, I consider, was due to an ascending infection induced from the local ureteritis caused by the irritation of the foreign body lying over the ureter, and its prompt subsidence once the cause was removed.

5. It is interesting to speculate on the course of the foreign body. Did it perforate stomach, duodenum or colon before reaching its final position?

In a brief survey of the more recent literature to which I have had access, I can find no parallel case in which a foreign body has been found lying free in the peritoneal cavity without producing an acute peritonitis at the actual time of perforation.

# Reviews.

## THERAPY BY HIGH FREQUENCY OSCILLATIONS OF SHORT WAVE-LENGTH.

"SHORT WAVE THERAPY", by Dr. Erwin Schliephake, is concerned with the treatment of disease by electromagnetic radiations of a wave-length of three to thirty metres. These wave-lengths lie at the lower end of the Hertzian portion of the spectrum used in wireless communication.

It is characteristic of the acquisitiveness of modern medicine, as an applied science, that even such recent and recondite physical agencies as these should be seized upon for therapeutic purposes and should already possess a voluminous, though contradictory, literature.

As distinct from diathermy, the electrodes are not applied directly to the patient, but are separated from the skin by a small air gap. The treated part therefore forms the dielectric of a condenser, and in this dielectric oscillatory currents are induced which generate heat by the usual joule effect.

Dr. Schliephake has covered the method in all its aspects. The first fifty pages are taken up with an outline of physical principles and technical procedure. From the medical point of view the exposition is sufficient and satisfactory. The ensuing hundred pages deal with the experimental evidence, both from the general literature and from the writer's own experience. These paragraphs are stimulating and suggestive, and form a well reasoned and well laid out explanation of the physical and physiological bases of the method. Mostly our convictions go with the author, whose conclusions are reasonable and temperate. Heat is postulated as the only means whereby the effects are secured, possibly with some colloidal effects. Differences in the physical characteristics of the radiation are shown to produce differing distribution of the heat in the various elements of the tissue, and in so far as that occurs, a selective heating and a consequent selective effect may be said to occur. That this phenomenon occurs we may accept, but that it is under control in direction and degree does not seem so sure.

Towards the end of this section, when the author is well warmed up to his subject, the bias of the one-method enthusiast peeps forth. We are told of a rosy future dawn when every disease and every individual microbe will be blasted by specific and optimal wave-lengths of short wave therapy. But we have heard it all before from other enthusiasts, in relation to the oscillations of diathermy, infra-red rays, ultra-violet rays and X rays. However, these little flights of imagination may be forgiven for the solid work and industry that underlie this part of the book.

The last section deals with the clinical results and is frankly disappointing. That favourable results were and are obtained cannot be doubted, but the monotony of the success here depicted in such varied and obstinate diseases expels all conviction from our mind and taxes our credulity. The clinical examples quoted are unconvincing. Dr. Schliephake apparently forgets that a large proportion of human ills vanish with, without, or in spite of treatment. His acceptance of any successful result at all after the application of the modality is entirely uncritical, and there is a weakly vague optimism in his general statements. Gonorrhœal arthritis is "often cured in a few days", erysipelas is treated "always with good results", cholecystitis is "generally relieved in a few sittings", and so on.

In spite of these criticisms, the monograph leaves the impression that the method is distinctly valuable and capable of producing interesting results as time goes on. Particularly it seems superior to diathermy as a method of producing deep heat. Those who intend to use short wave therapy apparatus should certainly read this little book, bearing in mind during the perusal of the clinical section that old adage: "All that is green is not grass."

The English of the translation is very uneven. In parts it is frankly bad, and often the foreign idiom has been slavishly rendered.

[1] "Short Wave Therapy: The Medical Uses of Electrical High Frequencies", by E. Schliephake, translated by R. K. Brown, B.A., M.D., D.P.H., with foreword by E. P. Cumberbatch; 1935. London: The Actinic Press, Limited. Royal 8vo, pp. 238, with illustrations. Price: 21s. net.

## LIGHT TREATMENT.

"THE ESSENTIALS OF LIGHT TREATMENT", by Dr. Elizabeth Anderson, is just another book on ultra-violet light.[1] Written for massage students, it has all the *ex cathedra* assurance of the lecturer imparting his knowledge downwards, with authority, to the uninitiated. It has therefore neither appeal nor usefulness to the medical man and is obviously not intended for his consumption.

It contains a fair summary, expressed in a brief, dogmatic manner, of the properties and uses customarily attributed to ultra-violet radiation; little discrimination, however, is shown between those that are consolidated and those that are controversial. The treatment is superficial and didactic to suit a lay audience.

The chapter on "Contraindications and Dosage" is well done, but in a book intended for masseurs medical guidance and supervision should be more heavily underlined. Timely warnings against the application of ultra-violet light in pulmonary tuberculosis, exophthalmic goitre, and acute diseases of various kinds are certainly brought forward; but this is not enough. Patients do

[1] "The Essentials of Light Treatment for the Use of Masseuses", by E. M. Anderson, M.D., B.S., with foreword by P. Hall, M.R.C.S., L.R.C.P.; 1935. London: Baillière, Tindall and Cox. Demy 8vo, pp. 93. Price: 5s. net.

not always consult masseurs with the diagnosis clearly indicated. The lay assistant, without expert supervision, is thus often in complete ignorance as to the possible or probable presence of these contraindications, and needs medical direction to avoid possible disaster.

Some serious errors are present. On page 80 we read:

> If X rays are given prior to actinotherapy on the same day, the actinic rays are antagonistic to the skin effect of the X rays and will minimize the chances of an X ray burn developing.

This is old stuff and erroneous, as was long ago proved by McKee. Moreover it is dangerous fare for the free-lance masseur.

To confound confusion still further, three lines lower, we are told:

> If actinic radiations are given prior to X radiation, penetration and absorption of the X rays is [*sic*] increased, and a smaller dose of the latter is necessary. The ultra-violet rays have lowered the tissue resistance to penetration by X rays.

As a diffuse display of technical terms this reads impressively, but as a cold-blooded statement of radiation physics it is startling. Penetration and absorption vary inversely as one another, and cannot increase simultaneously without shattering some of our fundamental concepts of radiation. In any case, whence comes the authority for such a statement?

The two quotations taken together represent a pseudo-scientific application of the elementary principle underlying the use of a double-headed penny. Ultra-violet light wins both ways—if only we can find someone simple enough to accept the *bona fides* of the coin without examination. In similar vein, on page 65 we learn that metabolism is restored to normal, fat men becoming lean, and lean men fat. The temptation to inquire: "And did they live happily ever after?" must be sternly resisted.

In spite of such defects, the book displays fewer faults of exaggeration than most of its class. It is well published and a pleasing feature is the absence of the usual series of figures (culled from the manufacturers' catalogue) depicting the various forms of apparatus used. It may be accepted, in spite of its blemishes, as a moderately good introduction to the subject suitable for nurses, masseurs and technicians, though the need for further text-books on this aspect of the subject is open to question.

## GREAT DOCTORS OF THE NINETEENTH CENTURY.

It is to be doubted whether many medical men have thoroughly explored the fascinating literary territory which lies between purely medical writing on the one side and the works of professional authors on the other. Yet the literature of England would be all the poorer for the lack of the work, biographical and other, of such men as Osler, Paget, Gibson, Treves, and the translator of Vallery-Radot's life of Pasteur. These are merely a few of the distinguished writers of what, for need of a better term, we may call medical *belles lettres*. The latest recruit to join this happy band is Sir William Hale-White, with a book containing seventeen interesting biographies of the great medical men of the nineteenth century.[1] In it we read of the lovable Edward Jenner, playing his flute, writing small verse and slowly gathering in his Gloucestershire home the material for his famous "Inquiry". We are given an intimate glimpse of the life of the indefatigable Astley Cooper, dissecting, lecturing, operating, attending to his £15,000 a year practice, and showing interest in the work of a small golden-headed student named John Keats. In a short review it is impossible even to outline briefly the wide scope of the book, or to do much more than hint at the absorbing doings and personalities of the famous men discussed therein. Hughlings Jackson and Manson, William Stokes and James Paget, Marshall Hall, Simpson and William Gull, Lister and Ronald Ross are included in the list of celebrities which Sir William Hale-White has presented for our consideration.

The book contains many good anecdotes and little pieces of information which must be unknown to many people. We learn, for instance, that William Stokes was the friend of that great poet, opium addict and incorrigible drunkard, James Clarence Mangan, whose poems "Dark Rosaleen" and "The Nameless One" are still loved by discriminating readers. Stokes found Mangan, towards the end of his life, naked and starving. Stokes provided the poet with food and clothes, placed him in a private room in the Meath Hospital and paid his funeral expenses after his death a few days later. The book also contains many famous aphorisms, such as that of Sir William Gull: "However clever you are, there are three diseases you are sure to overlook. They are phthisis, syphilis and itch." Then there is the story of Sir Charles Bell's visit to Roux's class in Paris. Bell is said to have created modern neurology in much the same way as Corot created modern French landscape painting. After Bell's departure from Roux's classroom the Frenchman said to his assembled students: "Gentlemen, enough for today. You may go. You have seen Charles Bell!"

If Sir William Hale-White's book has a fault, it is a certain peculiarity in punctuation, particularly in the use of commas. On page 196, for instance, we read the following: "In the year 1860, his (Sir John Simon's) report tells us of the distribution of pulmonary disease, it shows a mortality in mining and certain manufacturing districts nearly double that in agricultural districts . . ." The volume contains numerous examples of the sort.

Sir William Hale-White's volume contains an adequate index but no bibliography.

[1] "Great Doctors of the Nineteenth Century", by W. Hale-White, K.B.E., M.D., LL.D. (Hon.), F.R.C.P.; 1935. London: Edward Arnold and Company. Demy 8vo, pp. 332. Price: 15s. net.

## HUMAN PARASITOLOGY.

In "A Guide to Human Parasitology" one finds a clearly and concisely written account of diagnostic methods for the identification of the protozoan and internal metazoan parasites of man.[1] An abundance of illustrations adds considerably to the easier recognition of the various parasites and their eggs, larvæ *et cetera*. In addition, there is a wealth of information collected in tabular form. These tables should be of inestimable value to the busy practitioner and hard-working student, who have little time to read through pages of descriptive matter.

The second edition is not greatly changed, there being relatively few additions and omissions. It is a pity perhaps that the brief space allotted to treatment should have been omitted from the second edition. Rather, one would have liked to see an extension of this section.

One would like also to have a rather fuller account of methods of examining fæces for the eggs of helminth parasites.

The book is of value to practitioner and student alike, and even in the case of the advanced worker presents a readily accessible source of reference on the essentials of human protozoology and helminthology.

[1] "A Guide to Human Parasitology for Medical Practitioners", by D. B. Blacklock, M.D., D.P.H., D.T.M., and T. Southwell, D.Sc., Ph.D., A.R.C.Sc., F.Z.S., F.R.S.E.; Second Edition; 1935. London: H. K. Lewis and Company, Limited. Royal 8vo, pp. 268, with illustrations. Price: 12s. 6d. net.

The Medical Journal of Australia

SATURDAY, MARCH 7, 1936.

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## COUNTRY HOSPITALS.

HOSPITALS are established primarily for the treatment of sick persons. Among other objects are the training of nurses and the teaching of medical students. Hospitals may thus be divided into three groups: in those of the first group the care of the sick is combined with the teaching of students and the training of nurses; in those of the second group the training of nurses alone is added; in those of the third group neither students nor nurses are taught or trained. Hospitals in Australia may also be classified, according to their situation, into metropolitan and country groups. The hospitals in country areas vary enormously in size, in equipment, in efficiency of administration and in the character of the work carried out by the medical staff. In some large centres so-called base hospitals are provided with complete modern equipment, the members of the honorary medical staff are classified according to the special branches of medicine, and a resident staff carries out the duties usual to such a body. In most of these hospitals the training of nurses is undertaken. In other centres all the medical practitioners in the district are appointed as honorary officers to the hospital serving the district and treat the patients admitted under their care. Among the other prevailing conditions we find that in some areas the medical practice depends on the hospital—the hospital board or committee appoints a medical officer at an annual salary, he is allowed to conduct private practice (never very extensive) and, in addition to receiving certain allowances, he may be provided with a furnished or partly furnished residence. In some of the States hospital affairs are administered by a central body—in Victoria by the Charities Board, in New South Wales by the Hospitals Commission, in South Australia by the Director-General of Hospitals—in some States there is no controlling body. The present complex state of medical knowledge, together with economic, social, climatic and other conditions, makes it evident that, whether or not a central body controls hospital administration and practice, definite principles and standards for the efficient working of hospitals and adaptable to local circumstances should be formulated.

The Council of the British Medical Association in one of the States has recently been much concerned about the conditions of hospital practice in outlying areas. In one centre the hospital committee advertised for a medical officer at a salary of £500 *per annum*; a partly furnished residence was provided and one of the conditions of the appointment was that no private practice was allowed. It has been found that though the residence in this instance contained four rooms with kitchen and bathroom, the furniture was quite inadequate and the cost of living was appallingly high. The hospital equipment was primitive and many people who could afford to pay for treatment had to be treated free of charge at the hospital. The details of this appointment and the conditions of practice are quoted as an example of many others. In cases of this sort the controlling body obviously does not realize that the essential function of the hospital, the adequate treatment of the sick, will

not be fulfilled without the appointment of a suitable medical officer who is supplied with proper equipment and whose living conditions are made reasonably comfortable. To offer an appointment which is subject to unsuitable and degrading conditions is to invite applications from practitioners unstable in character and antiquated in knowledge. A well qualified and stable practitioner who accepts such an appointment in good faith will not stay in the position long; the frequent changes that take place in such practices bear witness to the truth of this statement.

To point to defects is easy; to suggest a remedy is quite another matter. Many of the problems of the hospitals in outlying areas are the same as those of all country hospitals. If these defects were remedied, the outlying hospitals would be better able to deal with the problems resulting from their peculiar situation. There is no doubt that the efficiency of many of the country hospitals of Australia could be increased. Some of them are in sorry plight—bricks and mortar they have; they may have many beds and credit balances at the bank; but efficiency they know not. If the controlling bodies of all country hospitals could be induced to strive for ideal conditions, and if the members of the medical staffs would sink their individual differences in the common good, much might be accomplished. In the past reference has been made in these pages to the standardization of hospitals as carried out in America. Whether such a measure would be effective in Australia is open to argument. Before anything of the kind was attempted it would be necessary to carry out a survey of all Australian hospitals. Whether this is done or not, some definite attempt should be made by the medical profession of Australia to deal with the whole subject. We would suggest that the Federal Council appoint a subcommittee to inquire first of all into the possibility of making a survey of hospitals and, secondly, into the advisability of setting up graduated standards suitable to different situations. Whatever is done must be done in an organized and thorough way; tinkering with such a problem is quite useless.

# Current Comment.

## INTENSIVE TREATMENT OF MORPHINE ADDICTION.

Alexander Wood, in 1853, was the first to administer drugs by subcutaneous injection, and eleven years later Pravaz invented the hypodermic syringe. Without these aids to therapy the practice of modern medicine would be impossible, but the evil of drug addiction has increased to stupendous proportions as a result of their introduction. Whatever good has flowed from the efforts of the League of Nations to control the sale of narcotic drugs, the fact is patent that suppression of the trade in narcotics is a problem of major importance. Thus in 1928 well over half a ton of morphine was illegally sold in Germany alone. In that country, according to a recent estimate, one person per 10,000 is a confirmed drug addict, and one medical practitioner in every hundred falls a victim to the habit. In Australia, though the laws governing the sale of drugs have undergone a long-overdue revision, it is still possible for a doctor practising in some large centre to obtain, for a time at least, quantities of morphine or of heroin which are out of all proportion to his professional needs. One of the most harassing problems which beset the treatment of drug addiction is that the patient becomes habituated to increasingly large dosages. This phenomenon is not to be observed in any cold-blooded animal, nor indeed in some mammals. Strangely enough, the dog can accustom himself to a dose of morphine eighty times larger than the normal.

Theophil Klingman and William H. Everts[1] have lately introduced, with some success, a method for the intensive treatment of morphine addiction. They realize that there is a large class of patients which takes morphine for the relief of pain accompanying certain illnesses. Such persons are in the main mentally stable, employ no more than the dosage strictly required, and are usually willing, when free of distress, to forgo the drug. Some psychotic patients also administer morphine to themselves much as a drunkard swallows alcohol; but with an improvement in the psychotic state the results of treatment are encouraging and recovery from addiction is the rule. But true morphine addicts are a class apart. The majority of them are in some way mentally unbalanced; very often they suffer from a sense of frustration and are in constant conflict with the circumstances of environment. They become rapidly habituated to the use of morphine, with an inevitable and continuous increase in dosage, sometimes up to fourteen grammes a day. Appetite dwindles, strength fails, the hair whitens or falls out, the skin assumes the look of parchment, sexual desire

[1] *The Journal of the American Medical Association*, January 4, 1936.

fades, the teeth decay. No deceit or lie, or even any crime gives these sufferers pause provided it is the means of their obtaining morphine. They are antisocial, secretive and furtive beings who rarely attain ripeness of years, for any intercurrent disease sweeps them out of existence.

The danger of morphine to the addict lies in this: that not only does it banish pain and summon up sleep, but it produces a sense of well-being. Under its influence the addict, for a time, is well pleased with the world and himself; the beggar in a dirty attic becomes a king. Thus it is that the sudden deprivation of morphine—the method laid down in the practice of the older "cures"—causes physical distress and unimaginable mental agony to the patient.

The intensive treatment of morphine addiction was originally introduced in an attempt to overcome swiftly this anguish of soul and body. The first drug to be employed for the purpose was scopolamine, and Lott was its sponsor, in the year 1901. His work was succeeded in the years following by that of Lambert, Towns, Wagner and others; later still, Sir James Purves Stewart hit upon the more satisfactory plan of combining pilocarpine with scopolamine. Klingman and Everts state that these two agents combined are simple to use, free from danger, and productive of none of the discomforts which otherwise accompany the sudden withdrawal of morphine. In brief outline, the treatment is as follows. By the hypodermic route the patient receives one dose of scopolamine hydrobromide ($^1/_{100}$ grain), then five hourly doses of the same drug ($^1/_{200}$ grain), followed by twenty-one doses of the same strength at two-hourly intervals. Two hours later treatment with pilocarpine begins, the patient being given six doses, each amounting to an eighth of a grain at hourly intervals.

Scopolamine has power, after briefly stimulating the cortex, to depress profoundly the motor and psychic functions. It produces amnesia and non-appreciation of current events. After a few doses the patient passes into a gentle, mumbling delirium, during which he giggles pleasantly and picks non-existent flies off the bedclothes. Now and then he sleeps, and on awakening smacks his lips at the sight of food and drink. Broadly, the drug may be said to depress the nerve endings governing the sensations, secretions and unstriped muscle. It is soon eliminated, the main bulk being oxidized in the body, the remainder filtering through the kidneys. Pilocarpine is the therapeutic antagonist of scopolamine. It is vigorously diaphoretic; moreover, it stimulates the salivary glands and the pancreas, and it has no effect upon cortical function. During the course of treatment two injections of pilocarpine rapidly abolish the delirium due to scopolamine, and at its termination the patient is in all respects normal, free from mental and physical discomforts, and possessed of a healthy appetite. The intensive treatment of Klingman and Everts causes, as does morphine, a lowering of the blood calcium; for this reason, medication is continued for six or eight weeks, the patient taking large doses of calcium phosphate combined with scopolamine hydrobromide (one-eighth of a grain) by mouth.

The patients here discussed must necessarily submit to a long period of medical supervision. Their mental condition must be studied, their environment adjusted when possible and needful, and a close watch kept upon them for three years or more. As the result of their "follow-up" system, Klingman and Everts are confident that they have permanently relieved 31 of a series of 57 morphinists. Of the remaining 26 patients, seven voluntarily returned for further treatment after intervals of non-addiction varying in length from three to ten months. These 57 patients were not chosen deliberately for treatment, but were successively admitted as they presented themselves at the hospital, and all were free from complicating diseases. It would seem that the only contraindications to the treatment here outlined are cardiovascular disease and senility.

It may well be that, should the claims made for this mode of treatment seem justified by results, it will be employed to cope with the craving for other opiates. Addiction to heroin is increasing in many civilized countries. In the United States of America, for example, during the period since the end of the war 75% of drug addicts were the victims of that drug, and in Baltimore, a city of one million people, there were, in 1921, 106 known heroin-takers in the population. Never was there more urgent need to combat with reliable weapons one of the great evils of modern society.

## DIAGNOSIS OF INFANTILE CONGENITAL SYPHILIS.

Two years ago H. N. Cole and certain colleagues analysed the pooled case records of five important maternity clinics in the United States of America. Their conclusions were that of pregnant women who did not yield a serum reaction to syphilis, 81% were delivered of living, healthy children, while only 57% of women with a positive serum reaction could show like results. These observers stressed the importance of antisyphilitic treatment during pregnancy; it was of prime importance, they held, to commence such treatment before the fifth month; this was the only safe method of preventing transmission of syphilis to the offspring.

An allied problem of great importance is the diagnosis at the earliest possible moment of infantile congenital syphilis, and Norman K. Ingraham, junior,[1] has recently published an exhaustive and authoritative paper on the subject. Many clinicians have thought it mere futility to attempt to diagnose syphilis in an infant a few days or weeks old,

[1] *American Journal of Syphilis and Neurology*, October, 1935.

particularly when the mother has received treatment shortly before her delivery. Besides this, there is the added difficulty that 86% of syphilitic children seem outwardly to be in perfect condition at birth; they are often free of all suspicious stigmata or fail to yield a serum reaction at this time, and only when attacked by some intercurrent disease, such as bronchopneumonia, do they exhibit frank signs of syphilitic infection.

The seemingly healthy offspring of syphilitic mothers are sometimes subjected to immediate postnatal therapy. In other cases the treatment is commenced if the maternal infection is of recent date or has not been fought with appropriate weapons. As a third method some syphilologists institute antisyphilitic therapy only when the infant is known beyond all doubt to be infected. Whichever be the right plan of treatment, Klaften has stated that if all the children of syphilitic mothers remain untreated until known to be suffering from the congenital form of the disease, 56% of them die within the first three months of life.

From the study of an enormous mass of statistics collected by competent observers, it appears that treatment offers by far the best hope of cure if instituted during the first two months of a child's life. But, owing to the difficulty of diagnosis, this two months period has always been filled with doubts and misgivings. Ingraham has therefore set himself the task of assessing the value of the various clinical and laboratory criteria which may be applied to questionable cases of congenital syphilis during this time of uncertainty. The material for his inquiry was derived from 2,385 pregnant women delivered at the Philadelphia General Hospital. Of these mothers, 10% were syphilitic and bore 53% of syphilitic children. Ingraham's observations convince him that, from the standpoint of the child's health, the duration of treatment given the mother is much more important than the type of drug or the dosage used; and that, although it appears unlikely that active antisyphilitic treatment ever cures the fœtal disease, it is a fortunate circumstance that the transfer of the spirochæte from the mother occurs only at a late date in pregnancy. Figures also indicate that women recently infected are more likely to produce diseased babies than those in whom the syphilis is of long standing. The tainted mother who remains untreated throughout her pregnancy has but one chance in five of bearing a healthy baby; if she be given four month's treatment there is but one chance in seven that the child will suffer from congenital syphilis; adequate maternal treatment from the fourth month of pregnancy onwards results in the birth of a healthy child in 95% of cases. Thus the hazards of infantile infection may be roughly gauged by a consideration of the maternal treatment during pregnancy.

The classical signs of congenital syphilis are many, but no writer has as yet discussed the relative frequency of their incidence, especially during the first few weeks of life. The stigmata are often so scanty and slight that early congenital syphilis has been called an oligosymptomatic disease. Perhaps the earliest and commonest sign is that of nasal obstruction within the first few days of life. Splenomegaly, present in 70% of the author's cases, is a sign of supreme value; but the author holds that syphilitic skin lesions and osteochondritis are never present at birth. Malnutrition, accompanied by gastritis uninfluenced by ordinary treatment, is to be suspected, as is prolonged and apparently causeless fever of moderate degree, for 40% of infants with the congenital disease have elevations of temperature. It may be said, however, that from purely clinical observation alone a diagnosis cannot be made with unqualified certainty during the first eight weeks of life, though it may be suspected in a child manifesting the signs and symptoms mentioned, and which is the offspring of a syphilitic mother. The result of the Wassermann test has no clear-cut value for the first few weeks following birth, for it may be positive in a healthy child and completely negative in the cases of unmistakable syphilis. Though Jeans and Cook have stated that serological examination is reliable after the second month after birth, other observers have cited instances in which syphilitic infants have obstinately failed to yield a serum reaction for more than six months. The increased blood sedimentation rate, which is a feature of an acute syphilitic infection, is not specific for that disease. If occurring in the child of an acknowledged syphilitic mother, the phenomenon may be taken to mean that the child is suffering from a grave systemic disease and that the disease is most probably syphilis. This implies that the child will need careful observation in order to exclude the possibility of syphilis.

According to Ingraham, the assumption that every baby who yields a positive Wassermann reaction at the time of birth suffers from congenital syphilis is erroneous in one-sixth of all cases. To infer too that the child of a syphilitic mother is himself not syphilitic simply because the serological test gives no reaction at birth leads to a correct diagnosis only three times in five. Spirochætes have been demonstrated in the circulation, nasal and conjunctival secretions, skin lesions, meconium and urine of syphilitic infants, but such children usually die at birth. The fact that spirochætes have been found in all the products of conception—fœtal membranes, amniotic fluid, placenta *et cetera*—does not necessarily mean that the child itself is affected. The spirochæte may be demonstrated in the umbilical vessels and in Wharton's jelly by the dark field examination of freshly prepared scrapings. This method has been in vogue since the year 1908 and is considered to be of high diagnostic value. Of necessity, the investigation must be prosecuted shortly after birth of the child, and requires intelligent team work on the part of the medical and nursing staffs. Ingraham finds that the dark field method was the means of discovering syphilis in 19 out of 81 children at an early period when

other laboratory and clinical tests are usually inconclusive.

The syphilitic bony lesions, periostitis and osteochondritis, were first recognized by X ray examination over thirty-five years ago. They are frequently present in the absence of a positive reaction to a serological test. On Ingraham's figures, 29·1% of children of syphilitic mothers gave a positive X ray picture before the age of one week, and these positive indications were never found in cases in which the children were proven subsequently to be healthy. The X ray picture seems to have absolute diagnostic value in 33% of cases. The intensity and length of the prenatal treatment given the mother has a direct result on the X ray findings in the infant; 77% of the infants who gave positive X ray pictures at the age of six days, were those of mothers less than two months under treatment. It is assumed that radiographic methods are of value in at least 40% of cases during the first week after birth.

In sum, the results of Ingraham indicate that the physical examination at birth of a supposed syphilitic infant is of real value in only 2% to 3% of cases; that serological tests, while of confirmatory value, are of unimpeachable worth only in 1% to 2% of syphilitic births; that the blood sedimentation rate, though suggestive, has no large field of usefulness; that the dark field examination of umbilical scrapings reveals spirochætes in 20% of infants born of syphilitic mothers; and, lastly, that osteochondritis may be found by the use of X rays in 30% of syphilitic infants during the first week of life. A judicious use of these various methods discovers, during the first week of life, at least 50% of babies later proven to be infected, and in 75% the diagnosis is sure before the end of the second month.

## THE EFFECT OF HIGH INTRAPLEURAL PRESSURE ON BLOOD PRESSURE.

There are several clinical states in which a high intrapleural pressure may exist, and these are known to produce undesirable effects. Thus it is well known that the presence of a massive pleural effusion may be responsible for sudden syncope or even death. Patients who are undergoing treatment by artificial pneumothorax may tolerate high pressures badly, and even the overfilling of the chest with air to a moderate extent may give rise to an acute, if temporary, embarrassment. Much more serious is the condition of spontaneous hæmorrhage into the pleural cavity, or acute hæmopneumothorax. This fortunately unusual accident causes a high degree of shock; the patient is cold and pallid, the pulse is rapid and feeble, and the chief therapeutic indication is to lower the intrapleural pressure by removing not only the effusion, but also the air under pressure, since in these cases air as well as blood escapes from the injured lung. Hæmopneumothorax is an emergency that may need treatment at the hands of any general practitioner of medicine, since it may follow one of those transport accidents which are becoming all too common. Jerome R. Head has written an article pointing out the effects of such increased intrapleural pressures on the systemic blood pressure.[1] He reports two cases. One was the result of an automobile accident, the other was a complication of spontaneous pneumothorax. In each case there was a conspicuous degree of surgical shock and the blood pressures were notably reduced; in one case the systolic pressure was 110 and the diastolic pressure 90 millimetres of mercury. In each case also there was air under high pressure in the pleural cavity, in the neighbourhood of 30 centimetres of water. One feature of considerable interest and importance was the practically complete disappearance of the pulse on inspiration. Aspiration relieved these patients rapidly, the discrepancy between inspiratory and expiratory phases was no longer manifest, and the blood pressure, in particular the pulse pressure, showed a substantial rise.

Head has noticed that there is a discrepancy between the inspiratory and expiratory blood pressures in patients with pleural effusions, and also those with pneumothorax, artificial or spontaneous. The blood pressure fell to a serious degree, however, only when the intrapleural pressure was very high or when there was some additional complicating factor, such as hæmorrhage. He refers to the so-called Traube-Hering phenomenon, which is the variation in blood pressure occurring synchronously with the phases of respiration; these waves have been observed to be exaggerated by acute loss of blood. It is not necessary here to refer to all the physiological arguments concerning this phenomenon; it is more important to give the author's practical conclusions. He believes that a high pressure in the pleural cavity acts both on the pulmonary and systemic circulation. This causes, first, collapse of the lung with consequent rise in the pulmonary circulation and strain on the right ventricle, with reduction of the vital capacity, and, secondly, compression of the great veins, thus obstructing the venous return to the heart and lowering its output. The circulatory embarrassment thus caused may be compensated for by an increase in tone of the vaso-constrictor centre; but this mechanism must eventually fail, when the mean blood pressure will fall below the critical level and circulatory collapse will ensue. Head points out that in these cases a fall in blood pressure during inspiration indicates definite cardio-respiratory embarrassment, but a lowering of the blood pressure during expiration is a positive danger signal, for it preludes collapse and even death. It is most important to realize that after, say, an accident involving the thorax, prolonged and severe circulatory shock may be due not only to loss of blood, but also to a rising intrapleural pressure. Hesitation in aspirating the pleural cavity is perhaps understandable where shock is present; but in these cases it is imperative to realize that the shock may actually be an indication for active treatment.

[1] *Archives of Internal Medicine*, November, 1935.

# Abstracts from Current Medical Literature.

## BACTERIOLOGY AND IMMUNOLOGY.

### Jennerian Prophylaxis by Means of Intradermal Injections of Culture Vaccine Virus.

THOMAS M. RIVERS AND S. M. WARD (*Journal of Experimental Medicine*, October, 1935), having reported the successful cultivation of vaccine virus in a medium consisting of minced chick embryo tissue suspended in Tyrode's solution and the use of this virus by means of intradermal inoculation for Jennerian prophylaxis in man, have continued investigations regarding the desirability of such prophylactic measures. The method of intradermal inoculation is as follows. Routine cultures of vaccine virus, after being ground in a mortar without an abrasive, are tested for the presence of ordinary bacteria. Bacteria-free emulsions are then mixed with equal amounts of sterile glycerol and stored at a temperature several degrees below 0° C. One-tenth of a cubic centimetre of glycerolated culture virus, diluted five to ten times with sterile salt solution, is injected into the skin of the upper arm or thigh by means of a tuberculin syringe fitted with a 27 gauge needle in a manner similar to that used in making an intradermal injection for the Schick test. After the injection has been completed it is essential to cleanse the needle wound thoroughly with alcohol in order to prevent the formation of a vesicle on the surface of the skin. No dressing is required and the arm or thigh can be freely bathed throughout the evolution of the intradermal lesion. When an individual who has never had a successful vaccination is intradermally vaccinated, no change occurs at the point of inoculation for four to nine days. Then a small red papule appears, which gradually becomes larger until the area of induration and erythema is two to three centimetres in diameter. At the height of the reaction, which usually occurs four to six days after its initiation, a secondary zone of erythema, less intense than the primary reaction, makes its appearance around the lesion, remains for a day or two, and then rapidly disappears. The induration gradually becomes less pronounced and is usually not discernible three weeks after the appearance of the lesion. If the inoculation has been made properly, there is no vesicle formation to leave a scar. Of twenty-nine infants and children who received one intradermal inoculation, all reacted. The time of the appearance of the resulting lesion varied from the fourth to the seventeenth day. None of the children seemed ill as a result of the vaccination; most showed an increase in size of the axillary lymph glands, but only two had fever, which lasted only a day and went no higher than 38·3° C. (101° F.). One had been unsuccessfully vaccinated on three previous occasions with calf lymph by the scratch method. Revaccination by means of calf lymph applied dermally results in immediate or immune reactions or in accelerated "takes". With a view to attempting to ascertain whether intradermal injections of culture virus in individuals previously successfully vaccinated would yield distinct and unmistakable immune reactions or unmistakable accelerated "takes", thirty-three individuals, one to sixty-five years of age, who had been successfully vaccinated one or more times with calf lymph, received intradermal injections of culture vaccine virus similar to those used for primary inoculations. All except two responded with reactions comparable either with the immune reactions or the accelerated "takes" that follow dermal revaccination. The earliest reaction appeared within six hours after inoculation, while others did not become evident until two to three days later. The fact that no reactions were observed until four to seventeen days after primary intradermal inoculation of culture virus led to the conclusion that immediate and accelerated reactions met with in revaccinated persons were specific for vaccinia. The exact duration of immunity produced by culture virus cannot yet be stated, but will be gradually obtained. The authors draw attention to the fact that a certain number of individuals successfully vaccinated with calf lymph will have lost their immunity within a period of one year. While the evidence at present available only shows that culture virus will protect against infection with calf lymph, protection against smallpox can be established only when persons vaccinated with culture virus have withstood infection on exposure to smallpox.

### Scarlet Fever Immunization of Nurses.

GAYLORD W. ANDERSON AND WARREN I. REINHARDT (*Journal of Infectious Diseases*, September-October, 1935) record the results of an investigation undertaken to determine the value of the Dick test and the effectiveness of immunization when previously diluted commercially available solutions are used. The survey covered 38 Massachusetts hospitals and 6,346 nurses. The solutions used represented the products of four different manufacturers. The immunized group included those who received the usual five injections of Dick toxin; nurses to whom less than three injections were given were transferred to the non-immunized group. Unfortunately in only a few of the hospitals was Dick testing repeated after immunization. The non-immunized group was composed of those who had neither Dick test nor immunization, as well as those who, on account of severe reactions, were left unimmunized with a positive result to the Dick test. Of the nurses who were left susceptible, 12·8% contracted scarlet fever, while 0·71% of those immunized developed the disease. Of those considered to be "Dick negative", 0·67% became infected. These figures suggest that five toxin injections confer, at least temporarily, as great an immunity as is represented by a failure to react to the Dick test. It was noted that the immunity as shown by the Dick test or as conferred by the Dick toxin is such that exposure to scarlet fever does not constitute an undue hazard. The results obtained indicated that immunity lasts at least for three years. The general impression was that reaction following injection of toxin constituted the principal drawback to the use of immunization, and in those hospitals in which immunization was on the voluntary basis some nurses preferred to risk the possibility of an attack of scarlet fever to the chance of a severe reaction. The reactions experienced, however, are never serious, nor do they constitute an excuse for failure to immunize those unduly exposed to the disease.

### The Recovery of Streptococci from Pasteurized Milk.

HEDLEY D. WRIGHT (*The Journal of Pathology and Bacteriology*, January, 1936) has investigated the cultural requirements of certain streptococci, mostly members of the group of *Streptococcus thermophilus* (Hucker's), isolated from milk. Difficulty in determining the number of organisms in milk has been due partly to the fact that the higher dilutions fail to yield the number of colonies commensurate with that appearing on plates inoculated with larger amounts of milk, and partly to the fact that the colonies which do appear on the standard media are pin-point in character. It has been generally agreed that the standard media employed in these investigations are inadequate, but can be rendered satisfactory by the addition of a small amount of milk or, according to some workers, a fermentable carbohydrate. In some cases the small size of the colonies has been due to the fact that the temperature employed for incubation has been lower than the organisms, which are true thermophiles, require. Having found that even with the addition of milk the size of many colonies still remained too small to enable accurate counts to be made, the author made use of infusion agar instead of the standard agars. He found that the colonies growing on this infusion agar were larger and that more accurate counts were rendered easier. It was also found that the growth of certain more fastidious strains was facilitated by the addition of fermentable disac-

charides (lactose and sucrose), while the addition of the slowly fermented disaccharide (maltose) and the fermentable monosaccharides (glucose, fructose and galactose) did not have the same effect. For routine work 0·5 cubic centimetre of milk is added to each plate of infusion agar, the milk providing the fermentable disaccharide in the form of lactose.

## HYGIENE.

### Some Preventive Aspects of Mental Hygiene as Related to Schizophrenia.

E. P. LEWIS (*Canadian Public Health Journal*, September, 1935) states that in the last nine years first admissions at the Toronto Psychiatric Hospital (out-patient department) totalled 4,678. Of the patients, 1,918 (40%) were under sixteen years of age. Only 67 were children considered neurotic, psychotic or of psychopathic personality. Three were schizophrenic and 12 had definite schizoid trends. Mention was focused on introvert types—shy, sensitive, suspicious, unsocial and preoccupied children, not wanting to play with others and often thought queer. Home and social demands and strenuous school competition may prove harmful. Habit training, parent education and desirable adult attitudes need attention. Mannerisms, phantasies and expressions of strange influences and bizarre attitudes and behaviour have a very unfavourable prognosis. The condition of ten of the 12 schizoid patients proved modifiable. Procedure is discussed. A complete physical, psychiatric and psychometric examination is followed up with definite programmes of activities of interests in which regularity is stressed. The clinic contact should be supported by home supervision by the social worker. Illustrative cases are described.

### Agglutinin Response to Typhoid Vaccine.

E. VALENTINE, W. H. PARK, K. G. FALK AND G. MCGUIRE (*American Journal of Hygiene*, July, 1935) state that the average severity of reaction induced by subcutaneous injection of typhoid vaccine has led to the testing of other methods of investigation. Three batches of vaccine were used and the agglutinin titre in the blood serum (microscopic Widal) was used as the test both before and after treatment. About 50 persons were tested with each method (95 with the percutaneous method). Rabbits were used as test animals. In the percutaneous method vaccine in "Hazeline Snow" was rubbed into the unbroken skin, a rubber glove being used. Rabbits rubbed twenty-five times at intervals of two or three days showed a definite rise in agglutinins. In human subjects the rubbings were made over twelve square inches on the flexor surface of the forearm, which was not washed for twenty-four hours. Three rubbings a week up to nine weeks were given. A smaller, though definite, response was obtained. In others the skin between the shoulders, after benzene treatment, was rubbed with vaccine mixture till it became red. The number and extent of the rubbings seemed more effective than the increased strength of vaccine. Only one local rash and seven headaches were reported in 756 treatments. The intracutaneous method gave results comparable with the immunity effects of the subcutaneous injection, but with very slight reaction locally and no constitutional disturbance. Indeed, half the strength of vaccine, 50, 100, 150 million bacilli, was as effective given intracutaneously as full strengths, 100, 200, 300 million, or even 250, 500, 1,000 million, given subcutaneously. Attempts at oral immunization with three known preparations of typhoid bacilli gave negative results. Preliminary treatment with bile was not used. The authors acknowledge the difficulties of using agglutination titres as a quantitative measure and of arguing from animal experiments to human. They found, however, in favour of the intracutaneous method for typhoid prophylaxis.

### The Glycæmic Response to Nicotine.

W. J. MCCORMICK (*American Journal of Hygiene*, July, 1935) mentions an ingenious advertising method of tobacco manufacturers in the United States of America who claimed "scientific confirmation" for "energizing effects" and "relief of fatigue in a harmless and delightful manner". The hyperglycæmia produced by smoking a cigarette is a sympathetico-adrenal response. Many other drugs besides nicotine and a number of infectious diseases *et cetera* may cause a definite rise of blood sugar. Experiments on adrenalectomized rats suggest a detoxicating function—a reaction against a toxic invasion. After determining the minimum lethal dose of a group of rabbits, the author found that subcutaneous injection of adrenaline following even super-lethal doses of nicotine prevented convulsions and insured uneventful recovery. The tolerance of the organism is thus greatly increased. The depletion of muscle-stored glycogen means lessened ability to work, and this disinclination to activity is apparently protective. In emotional disturbances, for example, fear, anger, pain, a rise in blood sugar occurs up to 30% within six minutes. Here the release of liver glycogen, together with more vigorous circulation and respiration, all aid the display of energy, but with narcotic or bacterial poisons this response is rather to help the maintenance of increased tissue oxidation and detoxication. The tolerance to tobacco may be temporarily lost after acute infections, such as influenza, possibly because of increased demands on adrenal glycogen reserves. The temporary delay of hunger and fatigue by smoking correspond to the effects of opium, but this can scarcely be called harmless. The predominant effect is narcotic and depressant, producing repose and calm. While the soothing effect is definite and habit-compelling, the "lift" attributed to the cigarette is in reality a handicap which Nature tries her best to counteract.

### "Nose Opening" Rays.

LEONARD HILL (*American Journal of Hygiene*, July, 1935) replies to critics of his statement that rays from bright sources of heat antagonize nose shutting rays from dull red and dark sources. He gives experiments to show that the technique used by his critics was either insensitive or fallacious. A screw nose-clip must be applied to make the breathing slightly difficult. Of 100 naval personnel, 94 found breathing more difficult by irradiation from an electric heater, and 45 found breathing eased on switching on an incandescent lamp. When the author used a stethograph—a recording tambour and water manometer connected with a rubber nipple fitted into one nostril—and a short glass tube eleven millimetres wide at the upper end and three millimetres wide at the lower end, fitted into the other nostril, the breathing response was readily recorded and the ordinary efficient airway could also be ascertained by comparison. The experiments confirmed the above statement. Glass screens off "nose opening" rays from the sun or an arc, and also protects against "nose shutting" dull red rays. Some people do not respond to nose opening rays.

### Carbarsone and Trichomoniasis.

ARNOLDO GABALDON (*American Journal of Hygiene*, September, 1935) reports that in the search for a suitable drug for the treatment of intestinal trichomoniasis, the effect *in vitro* of carbarsone (para-carbaminophenylarsonic acid) was tested with both human and rat parasites. Other drugs have been found effective in low concentrations outside the body—mercurochrome, butylresorcinol, dilute hydrochloric acid (N/10), formalin, picric acid, heptyl-resorcinol, and copper sulphate. Carbarsone is a white crystalline solid practically insoluble in water, but readily soluble in alkaline aqueous solutions. It contains about 29% arsenic. Its amœbicide qualities have already been noted. Cropper's protozoometer was used and the trichomonads were counted while motile. When the medium was not replaced daily, 0·20% proved invariably lethal within seventy-two hours, but when the medium was regularly changed, 0·30% was necessary. The rat flagellates reacted similarly. With the sublethal strengths 0·10% the reproductive rate was definitely reduced.

# British Medical Association News.

## SCIENTIFIC.

A meeting of the Section of Neurology and Psychiatry of the New South Wales Branch of the British Medical Association was held at the Robert H. Todd Assembly Hall, British Medical Association House, 135, Macquarie Street, Sydney, on November 14, 1935, Professor W. S. Dawson, the Chairman, in the chair.

### Contributions of Psychoanalysis to General Medicine.

Dr. W. Coupland Winn read a paper entitled: "Contributions of Psychoanalysis to General Medicine" (see page 323).

Professor W. S. Dawson said that Dr. Winn's contribution was quite the most unusual paper that he had ever heard before the section. The very little that he had been able to swallow he certainly could not stomach, although he trusted that rejection would involve only cerebral mechanisms. To criticize these theories emanating from Chicago was, of course, to criticize the whole method of psychoanalysis, and this meant covering well-trodden ground. One was inclined first of all to cast doubt on the validity of the data which had been provided in support of these theories, and, secondly, granted the data, their significance for disease processes. Even if these were facts, they were not necessarily factors. One might give an example in this way. What Professor Dawson dreamed about was his own personal affair and was no doubt the result of previous experiences and might perhaps be understood only after resurrection of memories and so on, but the fact of his dreaming might have quite a different causation. So it was with neuroses. Certain symptoms were present, but the mere study of symptoms did not necessarily explain the occurrence of the neurosis, and one could not help feeling that the Freudians were paying too much attention to the mental content of their patients and were too little concerned with other factors which were probably of more importance in the causation. Dr. Winn had admitted the absence of valid statistical results. Not only that, but there was a notable absence of controls, which was a serious shortcoming. One was inclined to ask with regard to a number of these psychoanalytical mechanisms, sadism, and anal-erotism and so on: "Aren't we all?" Moreover, did the psychoanalysts always realize the extraordinary suggestibility of their subjects? The nervous factors and the temperamental make-up of patients with hypertension, asthma and mucous colitis had long received recognition. Were they much further on if they found that such patients had imbibed anxiety at the maternal breast? At what stage in hypertension did Dr. Winn suggest that psychoanalysis would prove of therapeutic value—of more value than other methods employed to relieve anxiety, to encourage the patient to live a less tense life, and so on? Analysts were repeatedly calling attention to the importance of upbringing in very early years, and they claimed to be able to trace back symptoms to these early impressions which they supposed were the cause of neurosis in later years. Medical practitioners were working on very much sounder ground and in a more practicable way by furthering those methods of infant welfare which were so admirably designed to produce a stable nervous system. It was, of course, of paramount importance that the young organism should be handled with an absence of emotion and that conditions should be avoided which repeatedly evoked unpleasant emotional responses. One felt that such methods would prove a valuable means of preventing nervous disability in later years. The claim that psychoanalysis could reduce the incidence of infectious diseases was certainly one of the boldest that Professor Dawson had ever heard in support of that system. Dr. Winn had walked into the lion's den and he must risk the cannibalistic tendencies of those present, but Professor Dawson was sure he would take the criticisms offered in good part.

Cannibalism might be a phase in the make-up of the individual, and one might remember the very widespread ceremonies included by Fraser under the heading of "Eating the God", which were closely connected with fertility rites and which were practised by peoples in the most diverse parts of the world.

In conclusion, Professor Dawson would only regret that Dr. Winn had relied so much on the professor in Chicago and had been too modest about his own experience. Professor Dawson had no doubt, however, that his hearers had found his paper immensely stimulating.

Dr. H. C. MacDouall said that theoretically he was struck with the impracticability of the whole thing. Cases would take an hour a day for three years. Who would have the patience, the physician or the patient, to stand out? Dr. MacDouall could not face the prospect of seeing a patient an hour a day for three years. He thought that a lot of the apparent therapeutic improvement in these investigations was due not to any enlightenment of the patient's mind, but to suggestion from one direction or another.

Dr. O. Latham said that he found Dr. Winn a shade above him. No doubt with others Dr. Latham had found it very hard to master the technique and symbolism of such a subject in the past, and therefore he wished to express his appreciation of the lucid way in which Dr. Winn had placed before them the main principles and practices of the Freudian theories. Dr. Winn clearly showed the connexion between these and the latest developments in the United States of America and had done so so carefully that their criticism was rendered relatively straightforward and simple. Dr. Winn had certainly prepared a surprise packet for them. At the same time, Dr. Latham felt it unfair to condemn anything one did not completely understand, but the feeling he had, speaking on a lower plane intellectually than Dr. Winn, was that quite a number of his facts could be explained on what one might call a simple neural basis.

Another thing, too: any restraint whatever at any age was in the nature of an assault on the individual and was obnoxious. Dr. Latham supposed there was more harm, anyhow emotional reaction, brought about in the young child over the trouble of the napkin than over any other. Dr. Latham was given to understand that quite a number of states called diseased states, like asthma *et cetera*, were simply physiological over-reactions.

A good deal of the work of Pavlov on his dogs gave an insight into the fact that some of the most complicated psychological states could be worked out on very simple neural material.

As regards cannibalism, surely it was one of the things which long ago they had to restrain themselves from doing as one of the first essentials of civilization. Dr. Latham concluded by saying that the lecture had been most stimulating.

Dr. Grey Ewan said that after hearing Dr. Winn's paper he should ask to be excused for any remarks he had to make, as he felt that he was in the throes of an attack of intellectual, if not psychoanalytical, dyspepsia. He thought it would be agreed that Dr. Winn had dealt with a very abstruse subject, which, in Dr. Ewan's opinion, merited further consideration before any serious comment could be made. There was, however, one aspect in which Dr. Ewan was interested, and that was Dr. Winn's remarks about the super-ego, the infant's super-ego and the id. From Dr. Ewan's readings of the Freudian doctrines his conclusion was that the id represented the sum total of the instinctive tendencies, and the ego represented the sum total of the personality; therefore, to discuss an infant's super-ego before its mental evolution was complete was to Dr. Ewan incomprehensible.

Dr. H. D. Arnott thanked Dr. Winn for his very interesting paper. There was no doubt that they owed a great deal to Freud for his psychological research, but unfortunately he and his followers did not seem to have been able to get out of the little compartment that they had built for themselves. There were some nervous disorders in which the psychological aspects were the most

important, and there were others in which the physical aspects were the most important, but in the majority of cases they had an intermingling of the two. Dr. Arnott thought that most nervous disorders had quite simple causes and could be cured by simple common-sense methods. Unfortunately, most psychoanalysts were men of very complex minds and transferred this complexity to the interpretation of their patients. There seemed to be very few facts on which to base the conclusions reached in gastro-intestinal disorders. Indeed, the discussion savoured of the realms of fantasy. It was quite apparent that psychoanalysis was not applicable to the majority of patients, and Dr. Arnott felt sure that it would and did cause harm to many patients. Repression was a defensive mechanism which protected the nervous system, and the stirring up of long-forgotten painful experiences in minds that were generally in a state of extreme sensitivity could only make matters worse.

Dr. Winn, in reply, said that the Chairman had indicated that his paper had given him (the Chairman) intellectual indigestion. Dr. Winn could sympathize with him, because he would have reacted in the same way himself only a short time ago if he had heard someone else read what he had written.

Some years ago Dr. Winn had forwarded a hostile review to THE MEDICAL JOURNAL OF AUSTRALIA concerning a book written by Groddeck. This expressed more extreme views than Dr. Winn had read that night, asserting that physical disease was always secondary to psychological factors. Groddeck was what was called a "wild analyst", and other psychoanalysts did not ignore the importance of such things as vitamin deficiency as Groddeck tended to do.

When Professor Dawson mentioned cannibalistic impulses, he asked the pertinent question: "Aren't we all?" Dr. Winn's reply to that query was: "We are!" All of them had unconscious cannibalistic impulses in varying degree, and one might even speak of civilization itself as psychoneurotic on this account, just as that of a few thousand years ago could be described as psychotic, considering how limited was the savage's appreciation of reality. Professor Dawson had asserted that the results of psychoanalysis were due to suggestion. Dr. Winn did not deny that during what was called the positive phase the patient accepted interpretations as if they were suggestions, but an analysis was not completed until the end of the negative phase, during which every interpretation was fought tooth and nail. In addition, if suggestion was responsible for the results of psychoanalysis, why was it that those who believed only in suggestion did not undertake research into such conditions as Dr. Winn had mentioned in his paper?

Professor Dawson had protested against belittling the physical methods of treating disease. It was not intended that these should be given up, but merely that more emphasis should be placed on psychological methods. What had been said about the baby's reactions to its mother indicated that mothercraft conferred psychological benefits as well as physical. It did not mean that mothercraft should not be taught. Dr. Dawson stated that he would have liked to have heard more of Dr. Winn's personal experiences. Dr. Winn was sorry that he was not in a position to give more than he had given, but this was due to the fact that he was just beginning such research as he had described.

Dr. Latham had stressed the point that there were other methods besides psychoanalysis capable of getting results. Dr. Winn quite agreed that this was so, but claimed that psychoanalysis was the best psychological method. Dr. Winn concurred with Dr. Latham's views concerning the importance of Pavlov's work, but thought that the results would be more valuable if experiments were carried out on young animals before the formation of conditioned reflexes to unknown stimuli. Dr. Latham had mentioned the psychological effect of a lumbar puncture. Such a result depended upon the symbolic meaning of such a measure, just as was the case when teeth were extracted. This held even when undoubted focal sepsis existed, because the effect was psychological as well as physical.

Dr. McDouall had stated that psychoanalysis was impracticable. It was unfortunate that a full analysis took so long, but this was a drawback that applied to other forms of treatment also, such as certain orthopædic measures or that employed in chronic cases of tuberculosis.

Dr. Ewan had mentioned a point of psychoanalytical theory, namely, the conception of ego instincts, and had quoted James's definition of the ego. Freud had departed from James's opinion, but on this matter he would be the first to admit that the classification of instincts was in a state of flux. Freud's conception of life and death instincts, for instance, had not been entirely accepted by other analysts.

Dr. Arnott had stressed the importance of physical factors in neurological disease. Dr. Winn had not denied their existence, but, on the other hand, agreed that they were sometimes the most important. With regard to the results of Alexander's work, Dr. Arnott had stated that a few cures did not mean much. Evidence of psychogenic factors did, however, mean a great deal. Dr. Arnott had stated that patients were made worse by psychoanalysis. There was no effective form of treatment which might not make people worse when improperly used. Though the vast majority of patients were relieved by a short analysis, it was a fact that some persons were not suitable for a full analysis. One of the important arts which an analyst had to acquire was to be able to assess the indications for and against a radical analysis, just as a surgeon did in surgical cases. It was difficult to foretell how a patient would react during the negative phase, and it was wise not to undertake a full analysis when there was doubt on this point. During the negative phase the patient's symptoms got worse again, and such dangers as suicide, insanity, and fatal accidents (which were often unconscious attempts at suicide) might arise.

Those patients who were not suitable for a full analysis during adult life would have been so during childhood (preferably at about eight years old), but even when this was so such analyses were liable to interruption by the parents unless they themselves had been analysed, because the necessary return of symptoms during the negative phase was regarded as evidence of failure rather than of satisfactory progress, which it actually was.

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A MEETING of the New South Wales Branch of the British Medical Association was held at the Prince Henry Hospital on August 22, 1935. The meeting took the form of a series of demonstrations by members of the honorary staff of the hospital.

### Arthritis.

DR. C. B. BLACKBURN showed a female patient, aged eighteen years, who had been admitted to hospital for tonsillectomy on April 26, 1935, with a history of earache and frequent colds. Following upon tonsillectomy she complained of severe pain in the neck and inability to move it, and then stated that she had had slight pains in the neck for eight months. The pain had been very severe and there was great tenderness on pressure over the cervical spine, and pain on the slightest movement of the head. She remained in this condition, with slight elevation of temperature, for some weeks, and then gradually improved, and at the time of the meeting could move the neck quite freely. She had been kept at rest, pain had been relieved by acetosal and diathermy, and she had had a course of thermal therapy with injections of a vaccine of *Bacillus coli*. X ray examination on May 10, 1935, showed subacute spondylitis with marginal changes in the bodies of the vertebræ in the cervical and upper dorsal regions, and on July 28, an X ray report stated: "Spondylitic changes less marked, some vertebral absorption of the bodies of the cervical vertebræ V and VI, possibly of infective origin, but may be developmental." Dr. Blackburn said that the case was of interest as illustrating the acute allergic response sometimes resulting from interference with an area of focal infection, and also

as showing such a marked degree of blurring of the bony outlines of the vertebræ in so young a subject.

Dr. Blackburn's next patient was a girl, aged twenty-one years, with chronic polyarthritis of the rheumatoid arthritis type. This began as pain and swelling in the right knee five months before admission and soon spread to the left knee. On admission, five months before the meeting, there was effusion in both knee joints, apparently purely periarticular, and X ray examination showed no evidence of bony change. No other joints were involved. No focus of infection could be found. There was no reaction to the Wassermann test nor to the complement deviation test for Neisserian infection. No gonococci were found in a swabbing from the cervix. The gastric analysis was normal; the blood uric acid content was 2·0 milligrammes per 100 cubic centimetres. X ray examination of nasal sinuses and chest showed no abnormality. The patient did not respond to treatment, and after two weeks was given thermal therapy, to which the febrile reaction was good; but no benefit resulted to the joints, which were only slightly relieved by diathermy and massage. On June 19, 1935, a Mantoux test was done, and this was followed by a marked local, focal and general reaction, and ever since that date the temperature, previously normal, except for sharp rises after the intravenous vaccine injection, had remained elevated, ranging between 37·2° and 38·9° C. (99° and 102°F.). During this time several other points became involved—both wrists, both elbows and the feet. Dr. Blackburn said that the allergic response to tuberculin was unexpected and was certainly unusual, although he had seen one similar reaction in a boy of fourteen suffering from what appeared to be typical Still's disease. In this case a tuberculin test had been followed by pyrexia, which had remained for six weeks, and a flare-up in the joints, particularly the left hip, which had been very painful for many weeks but had gradually improved. Dr. Blackburn asked was there a type of polyarthritis of tuberculous origin comparable with the polysinusitis which in many cases was regarded as of tuberculous origin.

Dr. Blackburn also showed a male, aged twenty-eight years, who had had pain in his lumbar spine on and off for two years, but had lost the pain when the back became rigid a year before the meeting. During the previous eight months the neck had become stiff and flexed. He was found to have a "poker" spine with kyphosis in the upper thoracic region, and his neck flexed so far forward that he could hardly see any distance in front of him; the neck was fixed and rotated 20° to the right. X ray examination revealed: "Alteration of body of fifth cervical vertebra and intervertebral interval due to an infective spondylitis, possibly tuberculous." Clinically the case was one of spondylitis of the Marie-Strümpell type. There was no reaction to either the Mantoux test or the Wassermann test. The patient was kept in bed on his back with a halter applied under his chin and attached to the head of the bed, which was raised. After a month of this treatment his head was in quite a good position; he had been fitted with a head support and he proposed to return to his work as a clerk. A recent X ray report stated: "Alignment of cervical vertebra slightly improved, but not corrected." Dr. Blackburn said that in this type of arthritis ankylosis seemed to be the best that could be hoped for, and as it took place the pain usually ceased; but it was important to see that when the neck was involved, and this was by no means always the case, fixation was in the most favourable position.

DR. S. ROSEBERY showed a female patient who was admitted to hospital on April 29, 1935, complaining of pains in the joints. At that time the patient was unable to walk and could only be moved from place to place by the support of two persons. She was pale and anæmic, and suffered great pain on movement. The urine contained a little pus and a few granular and hyaline casts. The heart sounds were distant; the apex beat was outside the nipple line, and the second mitral sound was short and sharp. The hæmoglobin value was 98·4%; the red blood cells numbered 3,600,000 per cubic millimetre, and the colour index was 0·9. There was a marked increase of eosinophile cells. The red cells were larger than normal, and a few nucleated red cells were seen. The patient was given a series of injections of liver extract and showed some improvement. "Myocrisin" injections were then given, the initial dose being 0·01 cubic centimetre. Injections were given twice a week for the full course. At the eighth week the patient developed a macular and scarlatiniform type of dermatitis, and some degree of toxicity was noted. There were marked irritation and desquamation, with some vomiting. The "Myocrisin" injections were immediately stopped. The patient continued to improve and was now able to walk unaided without pain.

DR. WILFRED VICKERS showed a female patient, aged forty years, who had been admitted to hospital on May 9, 1935, with a history of pains in the joints for a period of fourteen years. She had had scarlet fever as a child and had been subjected to an abdominal operation fourteen years previously. The right knee was swollen, and there was pain with limitation of extension on attempted movement. There was crepitus in the elbow joints, and the movement of extension was limited at these joints. There was pain on movement of the wrists and shoulders. The fingers were deformed. Salicylates were administered. X ray examination revealed chronic rheumatoid arthritis of the knees and wrists. No change was observed in ankle or elbow joints. There was no reaction to the Kahn or the Wassermann test. The blood urea content was 32 milligrammes per 1,000 cubic centimetres; the blood uric acid, 2·05 milligrammes per 100 cubic centimetres.

From May 22, 1935, high bowel lavage was given once a week and, after a fortnight, twice a week. Liquid paraffin was given by the mouth. The carbohydrates were restricted in the diet. Extension was applied to the right lower extremity. X ray examination of the right knee on July 29, 1935, revealed complete loss of joint interval due to absorption of the cartilage from an infective osteoarthritis; no further change was observed in the bones, but the disease appeared to be still active. A back splint was applied to the right lower extremity at night.

On August 14, 1935, the left knee was swollen, and the patient complained of pain in the neck and across the shoulders.

Dr. Vickers also showed a female patient, aged fifteen years, who had been admitted to hospital on October 15, 1934, complaining that she had suffered from pain in her toes, knees, wrists, elbows and shoulders and right temporo-mandibular joint for the previous nineteen months. She had been treated at the Royal Prince Alfred Hospital by fixation with splints and, later, with plaster of Paris. At the time of admission she had pain in the right knee and the fingers of the right hand. She had had peritonitis eight years previously; her tonsils and adenoids had been removed five years previously.

Examination revealed a flexion deformity of the right knee and great limitation of movement. There was crepitus in the left knee. X ray examination revealed subluxation of the right knee joint, displacement laterally of the right tibia and fibula, and chronic osteoarthritis of both knee joints. Extension was applied; but the pain was too severe to allow its continuance. Salicylates were given, and tonsillar remnants and one infected tooth were removed. On November 20, 1934, arthrodesis of the right knee joint was performed. On July 3, 1935, a course of "Solganol" was prescribed.

Dr. Vickers also showed a female patient, aged ten years, who had been admitted to hospital on June 16, 1935, complaining that she had had pains in the ankles and knees and the back of the neck at intervals for two years. She had suffered from "sore throat". Her appendix had been removed. She had suffered from "kidney trouble" three years previously. Examination revealed inflammation of the tonsils, but no clinical evidence of arthritis. Salicylates were given and tonsils and adenoids were removed. A course of "Solganol" was commenced on July 30, 1935.

### Abscess of the Lung.

DR. C. B. BLACKBURN showed a male patient, aged twenty-eight years, who had been involved in a speedway crash eight months before the meeting and had been unconscious for a week. Since then he had had pain in the left side of the chest and a cough with a little yellow sputum. He was found to have diminished movement of the apex of his left lung, and there were harsh breath sounds and a prolonged expiratory murmur over the left side, opposite the fifth thoracic spine, 3·75 centimetres (one and a half inches) from the mid-line. There was slight kyphosis of the upper dorsal spine with projection of the spine of the sixth thoracic vertebra. The X ray report was as follows: "Consolidation of left apex with cavity formation of tuberculous origin; diminution of intervertebral spaces between fifth and sixth thoracic vertebræ, (?) tuberculous spine." The leucocyte count was 21,000 per cubic millimetre, and the purulent sputum coughed up showed no tubercle bacilli on repeated examination. The spine was not tender on pressure. As the clinical evidence did not support a diagnosis of tuberculosis, further X ray examinations were carried out, and the latest X ray report stated:

> Area of dulness in left apex, diminished in size, and condition likely to be due to a healing lung abscess, although tuberculous disease cannot be excluded. Diminution in size of body of sixth vertebra, which is wedge-shaped, but vertebral disk spacing is normal. The condition is probably a post-traumatic spondylitis (Kümmell's disease) rather than tuberculous.

### Buerger's Disease.

Dr. Blackburn also showed a female patient who had been in hospital recently for two months and who had come in on the day of the meeting to show how greatly she had improved. Her case was diagnosed as Buerger's disease eight years before the meeting; she had been gradually getting worse, complaining of pain, redness and blueness of the toes of both feet, especially the right, worse after standing or walking. She had been unable to go to her work as a clerk for some months; she was a non-smoker. The toes of both feet were blue and cold; there was tenderness in the lower calves of both legs, and the *dorsalis pedis* arteries could not be palpated. She was given a course of Buerger's exercises till she was spending four hours daily at them. She also had ten injections of 300 cubic centimetres of 5% saline solution intravenously, given very slowly (half an hour spent at each injection). After leaving hospital she continued the exercises and at the time of the meeting was walking a considerable distance without pain and was anxious to return to her work as a clerk.

DR. R. B. WADE showed a male patient, aged sixty years, who, for the past five years, had been subject to attacks of tingling and blueness in the fingers and toes. The attacks usually lasted several days. Gastro-enterostomy had been performed for gastric ulcer in 1925. The toes were shiny and blue and there was chronic infection around the nail bases. Pulsation of the *dorsalis pedis* arteries was impalpable. The systolic blood pressure was 130 and the diastolic 80 millimetres of mercury. There was a systolic murmur at each cardiac orifice; the heart sounds were faint.

Dr. Wade also showed a male patient, aged fifty-five years, whose right leg had been amputated for Buerger's disease in 1928. Eight months before the meeting he commenced to suffer from pain and numbness in the left foot on walking; this was relieved by elevation of the foot. The systolic blood pressure was 160 and the diastolic pressure 90 millimetres of mercury. The toes of the left foot were blue and congested. Pulsation of the *dorsalis pedis* and posterior tibial arteries was not palpable.

### Bullet Wound of the Brain.

Dr. Blackburn's last patient was presented to show the unusual damage produced by a bullet fired into the cranial cavity. The patient was a man, aged forty-five years, who had been shot at close range by a pea-rifle on July 6, 1935. The bullet entered through the left upper eyelid, just above and external to the inner canthus, and appeared to have traversed the floor of the cranial cavity in the direction of the petrous portion of the right temporal bone, where it had been deflected upwards. X ray examination showed small flecks of lead from the left orbit backwards, and the main mass of the bullet lay 3·75 centimetres (one and a half inches) above the internal auditory meatus, 1·9 centimetres (three-quarters of an inch) from the inner table. In its course it had missed the chiasma and both optic nerves, but apparently severed or severely damaged the right facial nerve, right third cranial nerve and right auditory nerve, and to some extent involved the cortical pathway of the left arm. After being completely unconscious for a few days the patient became conscious and quite sensible. At the time of the meeting he had complete right ptosis and a complete lower neurone type of right facial paralysis; he was very deaf on the right side, and the right eye was fixed and immobile. The left pupil reacted to light; the right did not. There appeared to be slight paresis of the left external rectus and some dulling of sensation in the ophthalmic division of the right trigeminal nerve. There was marked weakness of the left arm and hand, which had improved considerably; the left leg was normal and all tendon reflexes were normal. Vision was quite intact in both eyes.

### Tuberculosis.

DR. HAROLD WILSON showed a female patient, aged twenty-eight years, suffering from pulmonary tuberculosis. X ray examination on January 25, 1934, revealed a large cavity in the right lung near the hilum, and a small dense lesion, probably "Ghon's primary focus", in the upper outer right lung field. Artificial pneumothorax was immediately induced on the right side. One month later X ray examination showed satisfactory collapse of the right lung, but an acute exudative lesion in the middle zone of the left lung. Twelve injections of "Solganol B. Oleosum" were given, amounting to 2·0 grammes in all. Induction of artificial pneumothorax was attempted on the left side about two months after that on the right side; but it failed, owing to early, extensive, pleural adhesions. About four months after completion of the course of "Solganol" another injection of 0·05 gramme was given; this was followed within three days by diffuse hæmorrhagic purpura. The patient recovered from this in about five weeks, but suffered from marked anæmia. The red blood cells numbered 2,000,000 per cubic millimetre, and the hæmoglobin value was 43%. X ray examination on July 15, 1935, showed satisfactory artificial pneumothorax on the right side, with practically complete obliteration of the original cavity and considerable regression of the acute exudative lesion of the left side. The patient's general condition had greatly improved.

DR. R. JEREMY showed a male patient, aged seventeen years, a labourer, who had been admitted to hospital supposedly suffering from typhoid. He had been sick for four weeks, with lower abdominal pain. There was no vomiting. He had suffered from diarrhœa at the onset; but there was no blood or mucus in the stools. Sweating occurred. The patient had a slight cough. Examination revealed the presence of a tender, hard mass in the right iliac fossa. A provisional diagnosis of appendiceal abscess was made; but no operation was performed. The leucocytes numbered 6,500 per cubic millimetre (neutrophile cells 74%, lymphocytes 20%). There was no reaction to the Widal test. The urine appeared to be normal. On October 10, 1934, 480 cubic centimetres (sixteen ounces) of slightly turbid straw-coloured fluid were withdrawn from the right pleural cavity. This fluid contained pus cells; but no tubercle bacilli or other organisms were found. On October 11, 1934, X ray examination revealed fluid at the base of the right lung, with thickened pleura; bronchial infiltration through the right lung and in the left upper zone. The appearances were those of tuberculous disease or bronchopneumonia. On October 31, 1934, examination of the sputum revealed no tubercle bacilli. Attempts at culture of organisms from the blood were unsuccessful. No tubercle bacilli were found in the blood. On November 5, 1934, X ray examination of the alimentary tract after

a barium meal revealed no abnormality of diagnostic importance. On November 20, 1934, the report on X ray examination of the chest was as follows: "Considerable improvement; no evidence of fluid; infiltration of right lung clearing; still infiltration in left apex, probably due to tuberculosis." On October 10, 1934, the patient had an hæmoptysis, sixty cubic centimetres (two ounces) of blood being voided. On December 26, 1934, the report on X ray examination of the chest was as follows: "Bilateral pulmonary tuberculosis; upper lobes of both lungs involved; fibro-caseous tuberculous disease." On January 23, 1935, the lymphatic glands in the posterior triangle of the right side of the neck were seen to be enlarged. There was no reaction to the Wassermann test. There was a reaction to the Mantoux test. X ray examination of the renal tracts revealed no abnormality. Histological examination of a gland excised from the neck on February 20, 1935, showed it to be tuberculous. On June 28, 1935, the report on X ray examination after an opaque enema was as follows: "Enema flowed as far as caecum and shows a filling defect of the caecum and ascending colon; appearances consistent with caecal tuberculosis." Repeated examination of the sputum revealed no tubercle bacilli until July 2, 1935. The temperature varied from 40·4° C. (104·8° F.) at first to normal at the time of the meeting.

### Thrombosis of the Vena Cava.

Dr. Jeremy also showed a male, aged sixty-one years, a labourer, who had been admitted to hospital on July 28, 1935. Twenty years previously he had been very ill, probably with typhoid fever, for six months. Since then he had had enlarged veins in the abdomen and legs. He also had a pyloric ulcer (for which he was admitted). He had never lived in the tropics.

Examination revealed large tortuous veins of the abdominal wall, from the groins to the costal margin, and enlarged veins in the legs.

### Progressive Muscular Atrophy.

Dr. Jeremy's next patient was a man, aged sixty years, who had been admitted to hospital on April 27, 1935, with a history of dragging of the left leg for one year, pain in the left ankle on walking, and foot-drop for six months. Examination revealed kyphosis, forward bowing and thickening of both tibiæ, and forward bowing of the femora. The knee and ankle jerks and the triceps and supinator jerks were active. The plantar reflex was extensor on the right side. There were no sensory changes. There was fibrillation of the tongue. The cranial nerves appeared to be normal. There was inability to use the muscles supplied by the peroneal nerve. X ray examination of the skull revealed no bony changes. Bowing of the tibia, with thickening of the cortex, demineralization of the tarsus bones, bowing of both femora, osteoarthritis of the fifth lumbar and sacral vertebral articulations, and osteoarthritis of the left knee were revealed by X ray examination. There was no reaction to the Wassermann or Kahn test. Treatment consisted in the use of electrical agents, massage and encouragement to walk.

### Cervical Ribs.

Dr. S. Rosebery showed a female patient, aged fifty-two years, who complained of pain in the upper part of the left side of the abdomen only. There was no weakness of hands or arms, but there was occasional swelling of the right forearm. There were no other symptoms. Both breasts had been removed for mastitis ten years previously. Sensation was normal in arms and body. X ray examination revealed bilateral cervical ribs. No abnormality of diaphragm, spleen, kidney or chest was found at X ray examination.

### Cancer of the Lung.

Dr. Rosebery's next patient was a man, aged fifty years, a printer, who had been admitted to hospital on May 20, 1935, complaining of breathlessness on exertion and a slight cough for a period of three weeks. There were no night sweats and there was no family history of tuberculosis. A report on X ray examination was as follows: "The twelfth dorsal vertebra shows changes suggestive of neoplasm of secondary origin; the mediastinum is displaced to the right; the left thoracic cavity is completely filled, rendering the underlying viscera indiscernible."

Left *paracentesis thoracis* was performed seventeen times. Amounts varying from two to six pints of blood-stained fluid were removed. The erythrocyte count on July 2, 1935, was 4,400,000 per cubic millimetre; the hæmoglobin value was 82% and the colour index 0·9. No tubercle bacilli were found in the sputum. The urine contained albumin.

### Blood Sugar Estimation.

Dr. Rosebery also demonstrated a method of estimation of the blood sugar content. A description of this method was published in The Medical Journal of Australia on April 13, 1935.

### Leprosy.

Dr. E. H. Molesworth showed a male patient, aged forty-five years, suffering from cutaneous leprosy.

Dr. Molesworth said that the patient came from a family with a high grade of susceptibility to leprosy, as shown by the fact that his father had suffered from the disease and that a half-sister was an inmate of the Prince Henry Hospital, though now free of all active signs, but blind as a result of leprous iritis and leprous pannus. The patient shown and another brother, who was also infected, were children of a second marriage. The brother also had the cutaneous type of the disease. The family lived in the North Coast district of New South Wales. The patient had suffered from the disease for nearly twenty years. He had typical leprous nodules, involving the brows, which were hairless, and the ears, lips, palate and larynx, as well as the hands and other areas. His face was a typical example of the so-called leonine face of leprosy. One eye was practically blind as a result of leprous lesions of the iris and cornea. There was some atrophy of the intrinsic muscles of the hands, and the nerve trunks were thickened and easily palpable. There was anæsthesia over the nodules and in many other areas. Dr. Molesworth said that this man was one of the few patients who had shown little or no improvement during Dr. Molesworth's experience in the lazaret. Nevertheless the fact that a patient with cutaneous leprosy had survived so long and that he was still able to get about in fair general health was evidence of the value of treatment in leprosy.

Dr. Molesworth's next patient was a male, aged about fifty years, suffering from leprosy of the cutaneous type. The nodules were not so plentiful as in Dr. Molesworth's first case. The patient was blind as a result of leprous lesions in both eyes, and there was a good deal of disability in the right arm and right leg. Dr. Molesworth said that the latter was not due to his leprosy. When Dr. Molesworth first took charge of the lazaret, this patient was for the most part confined to his bed and was showing no response to treatment; in fact his condition was steadily deteriorating. It was then found that his blood serum reacted to the Wassermann test, and he was treated with "Novarsenobillon" in addition to the injections of chaulmoogra preparations. The effect of this was most marked, and during the previous two years a definite improvement, both in the number of nodules and in the patient's general condition, had been observed. The patient was now regularly on his feet, had put on weight, and had developed a cheerfulness which had been absent previously. Dr. Molesworth said that the coexistence of syphilis and leprosy had rendered it impossible to treat the latter disease with any degree of success. The syphilis must be combated first, after which the leprosy regularly responded more favourably to the chaulmoogra treatment. The lameness and the deformity of his arm

were due to another cause altogether. In fact this man had had a very adventurous and chequered career. As a small child he had been taken to Paraguay by his parents, who had joined the "New Australia" socialist colony. Whether he had come into contact with leprosy in Paraguay or later it was impossible to decide. As a young man he had returned, and for years had lived and worked in northern Australia. On one occasion, while crossing a rather deep ford in the Adelaide River, he had been attacked by a crocodile, which had seized his right thigh about and above the knee. While he was being dragged into deep water he recalled having been told that a crocodile would let go if its eye was gouged. Accordingly, with the right hand he gouged one eye out of the crocodile's head. The crocodile let go, but immediately snapped again, this time seizing him by the right arm. With his left hand he managed to gouge the crocodile's other eye out. He was again released and managed to clamber ashore, where, some hours later, he was found by his brother, and after a journey of over one hundred miles was admitted to hospital. The marks of the crocodile's bite were clearly visible in his leg, and the knee was ankylosed and the arm much disorganized as the result of the damage done.

Dr. Molesworth's next patient was a male, aged seventeen years, suffering from nerve leprosy. Dr. Molesworth said that this boy's father was also an inmate of the lazaret, but was now clear of all lesions and would be fit for discharge very soon. The patient was apparently infected while a very young child. In the face there was some paralysis of the *orbicularis palpebrarum*, which prevented the complete closure of the eyelids. The upper lip hung flaccid and expressionless as a result of paralysis of the *orbicularis oris*. There was a claw deformity (*main en griffe*). The intrinsic muscles of the hand were greatly wasted. The nerve trunks were thickened and easily palpable. Dr. Molesworth pointed out that these nerve trunks were occasionally hyperæsthetic in active disease on account of leprous neuritis. There was paralysis of the extensor muscles of the leg, determining drop-foot and a flapping gait. There was anæsthesia over large areas of the skin surface.

Dr. Molesworth's last patient was a male, aged sixty years, who had contracted leprosy apparently at Emerald, Queensland. His daughter had also contracted the disease; but in her case it had been discovered in the very early stage, with only one tuberculoid patch on the dorsum of the foot. Her disease had cleared up rapidly under treatment, and she remained clear of all signs of the disease. The father had reported only when the disease was already advanced. At the time of admission there were numerous nodules on the face, trunk and limbs. Under treatment all these lesions cleared up, leaving only some pigmentation, traces of which could still be seen on the face. Bacilli of leprosy could still be found occasionally in various situations. Latterly the treatment of this patient had been difficult because he showed signs of duodenal irritation which interfered with his nutrition and which was aggravated by any attempt to supplement the intramuscular treatment by the oral administration of chaulmoogra or its derivatives. This duodenitis had been greatly improved by treatment, and the patient was now putting on weight and was able again to take extra treatment in the form of sodium hydnocarpate administered orally.

### Ruptured Liver.

DR. J. C. STOREY showed a male patient, aged seventeen years, who had been admitted to hospital on July 15, 1935. On the previous day he had fallen on a football and had continued with the game. That evening he had suffered from epigastric pain and vomiting. At the time of admission he was very pale and sweating, and his pulse was very soft. The pulse rate was 130 per minute. There was an epigastric mass extending down to the umbilicus. He was placed at complete rest. The general condition improved steadily and the epigastric mass receded.

*(To be continued.)*

## NOMINATIONS AND ELECTIONS.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Scott-Young, Marjery, M.B., B.S., 1936 (Univ. Sydney), Sydney Hospital, Sydney.

Grogan, Gertrude Urquhart, M.B., 1923, Ch.M., 1927 (Univ. Sydney), The Rachel Forster Hospital for Women and Children, 195, George Street, Redfern.

# Correspondence.

## THE DIABETIC ASSOCIATION.

SIR: A letter and editorial notice appeared in THE MEDICAL JOURNAL OF AUSTRALIA for April 6, 1935, directing the attention of the profession to the existence of the Diabetic Association and pointing out the very great benefits which membership confers upon both practitioner and patient. Some of us have had the opportunity of observing this help, and wish to remind readers about this important and readily available organization.

Australian doctors and diabetics can partake of the rich fruits of this movement by subscribing to *The Diabetic Journal*, a recommendation to which could well accompany every prescription for the first bottle of insulin.

The formation of the Diabetic Association followed a letter by Mr. H. G. Wells to *The Times*, which pointed out the tremendous advantage of diabetics, of all types and walks of life, combining for the purpose of mutual discussion and assistance. The idea proved extremely popular from the outset, and prominent English laymen and physicians hastened to provide their honorary services for one or more of its various committees. Mr. H. G. Wells is the President, and Sir Frederick Banting and Professor Best are among the Vice-Presidents. About fifty doctors, many of whom are famous in this field of work, are on the Executive and Medical Advisory Committee. There is also a strong Dietetic Advisory Committee and an Editorial Board for Publications, headed by Mr. Hugh Walpole.

The first issue of *The Diabetic Journal*, which we send you herewith, appeared early this year, and speaks for itself. It is brimful of most valuable practical information, labour- and worry-saving devices of all kinds contributed by diabetics themselves, new recipes, schemes for overcoming the social handicaps imposed by the disease, together with plans for special schools and camps for children, convalescent homes and special nursing. It cannot fail to help continuously every diabetic, mild or severe, both in the daily routine and, of even greater importance, in spirit. Among many simple, but highly interesting, articles are a Children's Section and a Question and Answer Department. The journal presupposes an elementary diabetic education and is rather a kind of diabetic post-graduate journal and will prove of utmost value and comfort to isolated diabetics. Anyone may participate. Ordinary full membership, which includes the journal quarterly, is £1 1s. The Association generously provides the journal to patients of the hospital class for 2s. 6d. a year.

Over a thousand patients attend our clinics, and we are aiming at making each one a subscriber.

Subscriptions, *plus* exchange, should be sent direct to the Secretary, Diabetic Association, 59, Doughty Street, London.

Yours, etc.,

EUSTACE RUSSELL.
EWEN DOWNIE.
C. T. C. DE CRESPIGNY.
KEMPSON MADDOX.
W. W. INGRAM.

October 23, 1935.

## NEUROLOGICAL SURGERY AND ANÆSTHESIA.

Sir: Holding the views you have so clearly and forcibly expressed in your leader of December 14, I feel I must first thank you for your courtesy in giving a *verbatim* report of the Embley Lecture I delivered in Melbourne in September, 1935.

The slides, through an error, have been referred to incorrectly, but notwithstanding the well-known difficulty of reproducing coloured slides, they remain clear enough for anyone reading the paper to realize the mistake.

Your leader is another matter: I wrote the lecture with extreme care, and apart from my personal views I am entitled without giving offence to give reasons why a change in anæsthesia has become necessary in certain cases. No one can be more alive than I am to the fact that there are two schools of thought in intracranial surgery, but I am convinced that speed and gentleness are compatible.

You speak first of all of thoracic surgery. Surely it must be admitted that in this work speed is essential, whether the operation is done under a local or general anæsthetic. The most recent lobectomy to which I gave an anæsthetic was done in twenty minutes under a very light chloroform anæsthesia, and the excellent result in this and in other cases in which I have been concerned makes me think that in the future the mortality of this very serious procedure may be lowered by a combination of speed and simple anæsthesia.

I can well understand that when you admit an Australian operative mortality of 80% for the removal of cerebral tumours, some change is desirable. Such a mortality is far higher than anything I have met during the thirty-two years I have been giving anæsthetics for such cases. It is because I believe certain neurological surgeons have evolved "the necessary gentle handling of the tissues, asepsis, hæmostasis and so forth together with speed" that "I cannot understand why it is necessary to be so slow" in making a bone flap *et cetera*. Giving anæsthetics to such cases almost daily and seeing them afterwards makes it possible to form the opinion which I felt at liberty to express. I do so more readily as I have had the opportunity of seeing cerebral surgery in the new world and on the Continent as well as in England. Are Dandy and Adson, whose skill is recognized throughout the world, slow operators? You will naturally reply to this more "vague and general statements". I have figures, of course, that could be made to prove anything, as they would include many desperate cases and a great variety of tumours.

Here are the figures of four sets of cases:

1. Pituitary tumours operated on by the intracranial route in one year: twenty-one consecutive cases in 1928 without any untoward symptoms or death. Shortest time, forty minutes; longest, seventy-five minutes. Neither the late Sir Percy Sargent, who was the surgeon, nor I could claim this a constant figure; but the facts are as stated. Anæsthetic: intratracheal ether with pressure.

2. Gliomata, unselected and unclassified. The late Sir Percy Sargent's records, analysed by Mr. Harvey Jackson, who has given me the following data: 260 successive cerebral gliomata—mortality 12·7% within forty-eight hours. This is case mortality and not operative mortality, which would be considerably lower.

3. Hedonal anæsthesia. A hundred and twelve cerebral tumours removed, reported in *The Proceedings of the Royal Society of Medicine*, Section of Anæsthetics, 1922. No death from anæsthetic within twenty-four hours.

4. To illustrate work with which I am concerned in London (if one may venture to cite English experiences in Sydney) I quote one of my last cases (surgeon, Mr. Julian Taylor): H.L., 38. Operation January 31, 1936, for left parietal endothelioma. Anæsthetic started 11.20 a.m. Large bone flap extending across mid-line. Tumour, weighing 82 grammes, removed. Part of the bone flap taken out which was invaded by the tumour, and then fixed in position. Wound closed and patient in bed 1 p.m. Condition good. Anæsthetic: atropine, intratracheal $N_2O$ and $O_2$, ether. February 2: patient comfortable, sitting up in bed eating food. Today (February 4): pulse 76, temperature 97·6. Patient sitting up, apparently without abnormal symptoms.

The use of local anæsthesia and basal narcotics may be the most usual practice in Australia; it is not here. A small quantity of ether added to continuous stream of gas and oxygen is believed to be best after an extensive trial of other methods. I hasten to add pulmonary complications do not occur.

My first impression on reading your leader was surprise, but then it occurred to me how my old friend Embley would have risen to the occasion, and I only wish I had his facile pen and power of expression at my command.

Yours, etc.,

Z. Mennell.

149, Harley Street,
London, W.1,
February 4, 1936.

## PUBLIC MEDICAL OFFICERS' ASSOCIATION OF NEW SOUTH WALES.

Sir: The annual report of the Public Medical Officers' Association published in the journal of February 15 makes painful reading. The Committee bewails the fact that little progress was made towards their goal—presumably better reward for service rendered. They wonder whether they should not be just a little rougher in their methods.

The problem before the Association is exactly the same as the problem before the trades unions, the Teachers' Federation and "those other service organizations" from which it has so nicely kept distinct.

Before engaging in any "semi-political activities" the Association would do well to review in a detached, professional, scientific manner the forces they are contending against.

Today we are politically pledged to economy. As a community we have undertaken to work harder, produce more and consume less than we did in the days before the depression. The fact that the very cause of the depression was that the world as a whole produced so much more than it consumed does not seem to matter. We have, in the phraseology of the psychiatrists, made a very definite "retreat from reality". "Those whom the gods wish to destroy they first make mad." This retreat from reality, so well typified by our national economy campaign, is surely the herald of our national extinction.

The disparity between production and consumption, a disparity which "efficiency" and "economy" can only aggravate, is the cause of our world-wide glutted markets. It is the cause of the marshalling of the world's man power into military encampments to fight for markets. "When we see the net economic result of war", writes Professor Soddy, "we see the cause of war. In war the wealth that in time of peace is not consumed is now, together with the flower of the world's manhood, destroyed as rapidly as the modern engines of war can destroy it. The dead do not return, but the wealth destroyed sheds its corruptible body to take on the incorruptible. It is the national debt."

Insufficient reward to the world's workers is the cause of war and of the national debt. The national debt and the need for preparing for another war are made excuses for still further lessening reward for service. The Public Medical Officers' Association, admittedly for a purely sectional and selfish interest, have been trying to arrest this vicious cycle. But they have been trying blindly and without any critical examination of the real forces against which they are contending. They have thought the attainment of their goal of less importance than the maintenance of hands unsoiled by the rough-and-tumble fighting in which the trades unions, the Teachers' Federation and "those other service organizations" are engaged.

The annual report asks for expression of opinion by members on the advisability of "semi-political activities". Surely the advice of every thinking man, of every man

who desires not that the bodies of our sons be churned into the mud of Flanders as were those of our brothers, must be to fight, politically or otherwise, and without any qualifying, apologetic "semi", to fight in organized unison with all those who have a common cause—the right of the workers, the service renderers of this world, to consume the wealth their services produce, "each according to his works".

Yours, etc.,

NOEL E. KIRKWOOD.

The Hospital,
Rydalmere,
New South Wales,
February 27, 1936.

## Post-Graduate Work.

### WEEK-END COURSE AT ARMIDALE, NEW SOUTH WALES.

THE New South Wales Post-Graduate Committee in Medicine announces that the following programme has been arranged for the week-end course to be held at Armidale, New South Wales, in conjunction with the Northern District Medical Association, on Saturday, April 4, and Sunday, April 5, 1936.

*Saturday, April 4 (in the Literary Institute).*

11.30 a.m. to 12 noon: "The Value of Recent Remedies: A Short Survey of the Newer Drugs", Dr. G. C. Willcocks.
12 noon to 12.15 p.m.: Discussion.
12.15 to 12.45 p.m.: "The Treatment of Post-Operative Emergencies", Dr. V. M. Coppleson.
12.45 to 1 p.m.: Discussion.
1 to 2 p.m.: Luncheon (at Tattersall's Hotel).
2 to 2.30 p.m.: "The Acute Abdomen", Dr. V. M. Coppleson.
2.30 to 3 p.m.: Discussion.
3 to 3.30 p.m.: "The Treatment of Rheumatoid Arthritis", Dr. G. C. Willcocks.
3.30 to 4 p.m.: Discussion.
4 p.m.: Afternoon tea.
4.15 to 5 p.m.: "Infection of the Hand", with film, Dr. V. M. Coppleson.
5 to 5.45 p.m.: "Coronary Occlusion", with demonstration of simple electrocardiographs, Dr. G. C. Willcocks.
5.45 to 6.30 p.m.: General discussion and questions.
6.45 p.m.: Dinner (at Tattersall's Hotel).

*Sunday, April 5 (at the Armidale District Hospital).*

9.30 to 10 a.m.: "Injection of Varicose Veins", demonstration by Dr. V. M. Coppleson.
10.15 to 11 a.m.: "Treatment of Pneumonia, with Reference to New Drugs in Heart Failure", Dr. G. C. Willcocks.
11 a.m.: Morning tea (at the hospital).
11.30 a.m. to 12 noon: "Common Diseases of the Rectum and Anus", with demonstration, Dr. V. M. Coppleson.

The fee for the course will be £1 1s. Application should be made to Dr. A. G. Brydon, Armidale.

## Proceedings of the Australian Medical Boards.

### VICTORIA.

AN inquiry was held by the Medical Board of Victoria on February 20, 1936, into the conduct of Dr. Abraham Bertram Cohen, of 15, Blyth Street, Brunswick. The charge was as follows:

That your name be erased or removed from The Medical Register of Victoria for the reason that you have been guilty of infamous conduct in a professional respect in that:

(1) You did falsely inform one Mary Ellen Mellody that fees amounting to One hundred pounds (£100) were required to be paid to Doctor R. Milne Wishart in respect of his professional services in the performing of a surgical operation on James Mellody on 9th November, 1934; and

(2) Between the 15th day of November, 1934, and the 30th day of April, 1935, having falsely represented to the said Mary Ellen Mellody that you had paid or would pay on her behalf or on behalf of James Mellody the said fees amounting to One hundred pounds (£100) you did wrongfully collect from the said Mary Ellen Mellody or the said James Mellody the sum of Forty-nine pounds (£49) in excess of the sum actually paid by you to the said Doctor R. Milne Wishart in payment of the said fees.

The defendant pleaded Not Guilty.

The decision, bearing the date February 21, 1936, and signed by A. S. Joske, J.P., M.D., President of the Medical Board of Victoria, is as follows:

The Board finds No. 4302 Abraham Bertram Cohen guilty and it is hereby ordered that his name be erased and removed from The Medical Register of Victoria at the hour of One o'clock in the afternoon of the Fifth day of March, 1936.

## Obituary.

### JOHN FLEMING.

WE are indebted to Dr. B. T. Zwar for the following appreciation of the late Dr. John Fleming:

Dr. John Fleming's death, which occurred at Parkdale, Victoria, on November 29, 1935, deprived the profession in Victoria of a medical practitioner who was noted for his transparent honesty and sterling good qualities.

John Fleming was the son of George and Mina Fleming, formerly of Edinburgh and now of West Healesville, Victoria; he was born at Edinburgh on February 27, 1884. Fleming received his early education at Bruges, in Belgium. He passed the matriculation examination in order to enter the medical course in the University of Durham. He did not proceed with this, but came to Australia in 1901. In Australia he first decided to devote himself to the study and practice of pharmacy and passed the course of the College of Pharmacy. He was the gold medallist of that body for 1904 and became a demonstrator of the college. In 1908 he matriculated in the University of Melbourne for the purpose of taking up the study of medicine. He commenced his course in 1909 and qualified M.B., B.S. in 1913. During his medical course he obtained some of the necessary financial requirements by undertaking *locum tenens* work as a chemist.

Early in 1914 he went to England for the purpose of post-graduate studies and to qualify for the Diploma of Public Health. On the outbreak of the War he joined the Royal Army Medical Corps and served in France first as medical officer to a unit and afterwards as medical officer to a casualty clearing station. He was invalided to Australia in October, 1917, and subsequently commenced practice at Essendon, Victoria. Here Fleming soon built up a large practice and endeared himself to his patients. He earned and retained their implicit confidence and trust. Always mindful of his patients' interest, Fleming kept himself well informed of the advances in the various fields of medicine in order to secure for them the advantages of any recent development. During his period of active practice Fleming became well known for his kindness, gentleness and cheerfulness in the performance of his daily work. Even when his health failed and the gravity of his condition was well known to him, he still

retained his cheerfulness and unselfish consideration for others. His long illness he bore with extraordinary fortitude.

Fleming took a keen interest in masonic work. At the time of his death he had just completed his term of office as Worshipful Master of the Aberfeldie Lodge. He had helped to found the Aberfeldie Male Choir and was its organist.

John Fleming possessed other great gifts. To these I cannot pay a greater tribute than is contained in the following lines penned for me by a mutual friend, the Reverend William Goyen, a former Moderator of the Presbyterian Church in Victoria, who writes as follows:

> I enjoyed the privilege of Dr. John Fleming's friendship for a number of years. During several of those years he was my organist in the Middle Park Presbyterian Church and went in and out of my home at his own happy will. We all loved Jack, as we affectionately called him, my people, my family and, not least, myself. He was richly gifted. If the clock went wrong, he righted it; if the car jibbed, he set it going; if a social lacked vim, he supplied it; and at the organ (which was worse for wear) he so inspired it that my canny managers were slow to believe that we wanted a better. For some time he had that fine singer, once widely known in Melbourne, Gordon Gooch, as choir master, and together they made our worship rich in harmony. The memory of Dr. Fleming's friendship and assistance is ineffaceable. During the burial service at his grave, a lark rose on its wing and, "soaring as it sang and singing as it soared, showered a rain of melody". To those who stood by the melody fitted the moment. Dr. John Fleming adorned the profession. In season and out he ministered freely of his medical skill and Christian personality.

Like the Reverend Mr. Goyen, I enjoyed John Fleming's friendship over a number of years and can testify to his lovable and inspiring character. The medical profession and the community are much the poorer for his passing. Fleming left a widow and a young son and daughter, with whom much sympathy is felt by all his colleagues and friends.

## Diary for the Month.

Mar. 10.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
Mar. 10.—New South Wales Branch, B.M.A.: Ethics Committee.
Mar. 10.—Tasmanian Branch, B.M.A.: Branch.
Mar. 13.—Queensland Branch, B.M.A.: Council.
Mar. 16.—Federal Council, B.M.A.
Mar. 17.—New South Wales Branch, B.M.A.: Medical Politics Committee.
Mar. 18.—Western Australian Branch, B.M.A.: Branch.
Mar. 24.—New South Wales Branch, B.M.A.: Council (quarterly).
Mar. 25.—Victorian Branch, B.M.A.: Council.
Mar. 26.—New South Wales Branch, B.M.A.: Annual Meeting.
Mar. 26.—South Australian Branch, B.M.A.: Branch.
Mar. 27.—Queensland Branch, B.M.A.: Council.
Mar. 31.—New South Wales Branch, B.M.A.: Council (Election of Office-Bearers and Appointment of Standing Committees).

## Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser", pages xx, xxi, xxii.

Repatriation Commission, Adelaide, South Australia: Medical Officer.

The Rachel Forster Hospital for Women and Children, Sydney, New South Wales: Honorary Officers (female).

The Women's Hospital, Crown Street, Sydney, New South Wales: Resident Medical Officer.

## Medical Appointments: Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

| BRANCHES. | APPOINTMENTS. |
|---|---|
| New South Wales: Honorary Secretary, 135, Macquarie Street, Sydney. | Australian Natives' Association.<br>Ashfield and District United Friendly Societies' Dispensary.<br>Balmain United Friendly Societies' Dispensary.<br>Friendly Society Lodges at Casino.<br>Leichhardt and Petersham United Friendly Societies' Dispensary.<br>Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney.<br>North Sydney Friendly Societies' Dispensary Limited.<br>People's Prudential Assurance Company Limited.<br>Phœnix Mutual Provident Society. |
| Victorian: Honorary Secretary, Medical Society Hall, East Melbourne. | All Institutes or Medical Dispensaries.<br>Australian Prudential Association, Proprietary, Limited.<br>Mutual National Provident Club.<br>National Provident Association.<br>Hospital or other appointments outside Victoria. |
| Queensland: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane. | Brisbane Associate Friendly Societies' Medical Institute.<br>Chillagoe Hospital.<br>Richmond District Hospital, North Queensland.<br>Members accepting LODGE appointment and those desiring to accept appointments to any COUNTRY Hospital, are advised, in their own interests, to submit a copy of their Agreement to the Council before signing. |
| South Australian: Secretary, 207, North Terrace, Adelaide. | All Lodge appointments in South Australia.<br>All Contract Practice Appointments in South Australia. |
| Western Australian: Honorary Secretary, 205, Saint George's Terrace, Perth. | All Contract Practice Appointments in Western Australia. |
| New Zealand (Wellington Division): Honorary Secretary, Wellington. | Friendly Society Lodges, Wellington, New Zealand. |

## Editorial Notices.

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